

DIARIA BRITANNICA;
OR, THE
BRITISH DIARY:
AN
ALMANACK,
FOR THE
Year of OUR LORD 1792.

BEING
BISSEXTILE, or LEAP-YEAR.

CONTAINING,
A VARIETY of useful and entertaining MATTER in
ARTS and SCIENCES:
Calculated for the Improvement of the CURIOUS.
ALSO AN

E P H E M E R I S,

Wherein are contained the Heliocentric and Geocentric Places
of the Planets, accurately calculated.

By *COTES* and *TAYLOR.*

The fifth Almanack published of this Kind.

That d'vine mist'ry, and a hist'ry written in ASIA
Was finished (now to be read) in great BRITANNICA;
In wars alarms, so aids her arms, and makes her for to keep
Her foes in fear, both far and near, and triumph o'er the deep.
That source of sense, that eloquence, called Mount SINAI,
Surveys the earth, and e'ry breath, the air, and orbs on high:
Great reason's mount, that flowing fount of science, art, and skill,
O! BRITISH SONS, ye chiefest DONS, come here and drink your fill.
The mount is dried, not satisfied, makes you drink o'er and o'er,
At SION's mount, that flowing fount, drink once you'll thirst no more;
The first gave death throughout the earth, great wars, wrath, jar, and strife,
But SION's MOUNT, that LOVING FOUNT, gives us eternal life.
Attain but this, you cannot miss, truly yourselves to know
Your origin, how born in sin—what fruits in EDEN grow.

BIRMINGHAM,

Printed and sold by *THOMAS PEARSON,*

AT THE WHOLESALE ALMANACK, STATIONARY, AND MEDICINE
WAREHOUSE IN THE HIGH-STREET, (*Price One Shilling*).

Chronological Notes for the Year 1792.

The Julian period	- - 6505	Septuagesima Sunday	Feb. 5
Roman Indiction	- - 10	Shrove Sunday	Feb. 19
Golden number	- - 7	Easter Day	April 8
Cycle of the sun	- - 9	Whit Sunday	May 27
Dominical letters	- A G	Trinity Sunday	June 3
Epaet	- - 6	Advent Sunday	Dec. 2
Number of Direction	- 18	Years of the Millennium	141

Astronomical CHARACTERS used in this DIARY.

♈ Aries	♍ Virgo	♊ Aquarius	♂ Mars	♈ N. Node
♉ Taurus	♌ Libra	♋ Pisces	♀ Venus	♏ S. Node
♊ Gemini	♍ Scorpio	♊ G. Sidus	♂ Mercury	♁ Earth
♋ Cancer	♊ Sagittary	♄ Saturn	☉ Sun	♂ Part. for.
♌ Leo	♏ Capricorn	♃ Jupiter	☾ Moon	

♋ Conjunction, when planets are in the same sign, D. M. &c.

* Sextile, when 2 signs dist. | Δ Trine, when 4 signs dist.

□ Quartile, when 3 signs dist. | 8 Opposition, when 6 signs dist.

Of the Four Quarters of the Year.

Spring Quarter begins	March 19, at 22 m. past 9 afternoon
Summer Quarter begins	June 20, at 19 m. past 7 afternoon
Autumn Quarter begins	Sept. 22, at 4 m. past 9 morning
Winter Quarter begins	Dec. 21, at 35 m. past 1 morning

VENUS will be a morning Star till the 6th day of August, and after that time she will be an evening star to the end of the year.

JUPITER will be a morning star till the 15th day of April, then an evening star till the 3d day of November, at which time he becomes a morning star to the end of the Year.

Obliquity of the Ecliptic.

Equat. of Equinoctial Points.

January 1	23° 27' 48" 7	+ 2" 5
April 1	23 27 48 5	+ 1 0
July 1	23 27 48 4	- 0 6
October 1	23 27 48 4	- 2 1
December 31	23 27 48 3	- 3 6

Equation of TIME, whereby a Watch or Clock may be set from a Sun-dial.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep	Oct.	Nov.	Dec.
M Clock	Clock	Clock	Clock	Clock	Clock	Clock	Clock	Clock	Clo.	Clo.	Clo.	Clo.
D t. fast	t. fast	t. fast	t. fast	t. fast	t. slow	t. slow	t. fast	t. fast	t. flo	t. flo.	t. flo.	t. flo.
1	4 2	14 3	12 30	3 42	3 12	2 30	3 29	5 51	0 30	10 38	16 15	10 17
4	5 26	14 22	11 50	2 48	3 32	2 14	2 5	3 36	1 28	11 33	16 13	9 4
7	6 45	14 34	11 6	1 55	3 46	1 29	4 31	5 16	2 28	12 24	16 3	7 47
10	8 c	14 39	10 18	1 5	3 56	0 54	5 57	4 51	3 30	13 12	15 46	6 25
13	9 10	14 37	9 28	0 17	4 00	18 5	20 4	21 4	32	13 55	15 20	4 59
16	10 14	14 28	8 36	0 10	3 58	0 21	5 38	3 46	5 35	14 32	14 47	3 32
19	11 12	14 13	7 42	1 9	3 51	1 c	5 52	3 7	6 37	15 5	14 7	2 1
22	12 3	13 52	6 47	1 40	3 40	1 39	6 12	23	7 40	15 32	13 19	0 31
25	12 49	13 26	5 52	2 10	3 24	2 17	6 41	35	8 41	15 52	12 25	0 59
28	13 25	12 54	4 56	2 48	3 32	54 6	2 0	44	9 41	16 7	11 24	2 27

ECLIPSES for the Year 1792.

IN the course of this year there will be but two eclipses of the greater luminary the sun, and both invisible to our isle of Great Britain, the one happening before the sun's apogee, and the other after the sun's apogee; therefore no full moon eclipse this year; the computation and time are as followeth:

I. March 22d, in the afternoon, the sun will be eclipsed, but invisible, the conjunction at 5h. 50m. in long. of. $2^{\circ} 50'$. the moon's latitude $3^{\circ} 30''$. north; the sun will be centrally eclipsed on the meridian at 5h. 51m. 30s. in longitude $87^{\circ} 52' 30''$. west, and latitude $4^{\circ} 45'$. north.

II. September the 16th, in the morning, the sun is eclipsed, but invisible, the conjunction at 9h. 18m. in long. 5f. $24^{\circ} 8'$. the moon's lat. $1'$. south; the sun will be centrally eclipsed on the meridian at 9h. 18m. in longitude $40^{\circ} 30'$. east, and latitude $1^{\circ} 45'$. north.

The PRIZES, for the several solutions, have been determined by lot as follows: First, for the prize-question, to Mr. John Griffith, 12 Diaries.—2d, For the prize enigma, to Mr. Patrick Hall.—3d, For the general answer to the enigmas, to Mr. John Fildes, and Mr. Daniel Sheridan, 6 Diaries each.—4th, For the general answer to the rebuses, charades, &c. to Mr. William Salter. All of whom will please to send for them to Mr. Pearson, Printer, in Birmingham.

Unfeigned thanks to correspondents all,
For their assistance, either great or small;
And hopes, in future, they will not delay,
To send their letters by the first of May.

AN EXAMPLE. To find the planets' places Jan. the 1st, look in the calendar for Jan. 1st, under ϵ , and you will find 12 deg. in γ , then look in the table of min. for Jan. 1st. and you will find 22 min. therefore, for the given day, his place is in γ $12^{\circ} 22'$.

A TABLE

A TABLE of the MOON's southing, for Greenwich for the Year 1792.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
D	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
1	6 18	7 6	6 35	7 40	8 39	9 8	9 36	11 20	0 0	0 33	1 46	2 0
2	7 3	7 55	7 22	8 32	8 51	10 2	10 36	morn	0 54	1 23	2 35	2 47
3	7 48	8 40	8 10	9 19	9 40	11 0	11 39	0 19	1 46	2 13	3 24	3 33
4	8 33	9 27	8 58	10 7	10 31	morn	morn	1 16	2 36	3 3	4 12	4 18
5	9 19	10 15	9 45	10 56	11 24	0 0	0 41	2 10	3 25	3 51	4 50	5 2
6	10 5	11 2	10 33	11 46	morn	1 2	1 41	3 24	4 40	5 45	6 45	6 46
7	10 52	11 49	11 21	morn	0 21	2 4	2 38	3 52	5 25	6 30	7 36	8 30
8	11 39	morn	morn	0 39	1 20	3 43	3 32	4 40	5 51	6 16	7 15	7 15
9	morn	0 36	0 9	1 33	2 20	4 14	23 5	27 6	39 7	3 3	4 8	4 1
10	0 26	1 23	0 58	2 3	3 21	4 55	5 12	6 14	7 26	7 49	8 40	8 50
11	1 13	2 10	1 48	3 28	4 20	5 45	5 59	7 18	8 14	8 35	9 32	9 42
12	1 59	2 58	2 4	4 27	5 17	6 33	6 45	7 48	9 0	9 20	10 21	10 37
13	2 45	3 47	3 34	5 26	6 11	7 20	7 31	8 36	9 47	10 6	11 13	11 35
14	3 31	4 39	4 29	6 23	7 28	8 6	8 17	9 24	10 33	10 53	11 7	11 36
15	4 17	5 32	5 26	7 18	8 51	9 52	9 4	10 11	11 19	11 41	1 4	1 37
16	5 4	6 26	6 28	8 10	9 38	10 38	9 51	10 58	11 5	11 2	12 3	12 35
17	5 54	7 27	7 22	9 19	10 25	11 10	10 30	11 44	0 52	1 24	2 3	2 37
18	6 47	8 25	8 19	10 50	11 11	12 11	11 26	0 20	1 41	2 10	3 4	3 29
19	7 42	9 24	9 14	11 38	10 57	11 59	0 12	1 14	2 31	3 15	4 50	5 21
20	8 40	10 22	10 7	12 25	11 44	0 46	0 58	2 3	3 25	4 13	5 53	6 10
21	9 4	11 17	10 58	0 12	0 31	1 33	1 44	2 4	3 17	4 5	6 45	7 58
22	10 47	0 11	11 47	1 0	1 19	2 15	2 29	3 35	4 13	5 6	7 37	8 45
23	11 42	1 20	0 37	1 47	2 3	3 43	3 13	4 25	5 11	6 48	8 24	9 32
24	0 4	1 51	1 24	2 35	3 54	4 38	3 58	5 17	6 9	7 58	9 12	10 19
25	1 34	2 39	2 12	3 23	4 4	5 34	4 44	6 12	7 8	8 50	9 59	10 7
26	2 26	3 27	3 0	4 10	5 26	6 15	5 33	7 10	8 39	9 41	10 47	11 55
27	3 15	4 14	3 48	5 5	6 1	7 6	6 25	8 9	9 58	10 30	11 35	12 43
28	4 25	5 14	4 35	6 44	7 56	8 52	7 20	9 10	10 51	11 19	morn	morn
29	4 48	5 48	5 22	7 31	8 42	9 43	8 17	10 8	11 42	morn	0 24	0 30
30	5 34	6 10	7 17	8 29	9 38	10 39	9 17	11 5	morn	0 8	1 12	1 16
31	6 2	6 58	8 8	9 17	10 17	11 10	morn	0 57	1 12	2 1	3 1	3 1

A TABLE of the Seven Stars southing, or Times when they pass the Meridian.

	A.	A.	A.	A.	A.	M.	M.	M.	M.	A.	A.
1	8 4	6 30	4 42	49 58	10 55	8 51	6 47	4 51	3 41	3 10	59
7	8 20	6 10	4 19	27 35	10 30	8 2	6 24	4 29	2 42	0 40	10 33
13	7 50	5 46	3 57	2 50	11 10	8 26	1 4	8 2	20 0	15 10	7
19	7 23	5 23	3 36	1 43	11 48	9 4	7 38	5 39	3 47	1 58	11 50
25	7 3	5 02	3 15	2 11	12 3	9 15	7 14	5 17	3 26	1 35	11 25

Use of the Tables. To find the Time of High Water.

EXAM. On Jan. 1st Moon souths at - 6 18 p.m.

Add for N. and F. Moon for London - 2 30

Time of High Water at London 8 48 p.m.

Add for next Low Water - 5 48

Low Water at London, Jan. 2d - 2 36 m.

Ex. 1.) On Jan. 1, Seven Stars souths at 8 47 p.m.

Semidiurnal arc subtract and add - 8 17

Seven Stars rises Jan. 1st at - 0 30 p.m.

Seven Stars sets next morning Jan. 2, - 5 4 m.

Ex. 2.) Seven Stars souths Jan. 1st at - 8 47 a.

Sirius souths after the Seven Stars - 3 1

Sirius south Jan. 1st afternoon - 11 48 a.

Semidiurnal arc subtract and add - 4 37

Sirius rises Jan. 1st afternoon - 7 11 a.

Sirius sets Jan. 2d morning - 4 25 m.

	No. of Stars.	l. a.	d. a.
Aldebaran	0	40	7 29
Capella	1	26	—
Betelgeuse	2	8	6 41
Sirius	3	14	37
Alphard	5	42	5 24
Regulus	6	21	7 11
Upp. point.	7	15	—
Ving. spik.	9	30	5 12
Arcturus	10	29	7 55
Antarus.	12	43	3 34
Lyra	14	52	—
Atair	16	5	6 46
Fomalhaut	19	8	1 55
Pole star	21	13	—
Almach	22	16	—
Algol	23	19	—

Geocentric Latitude.										JANUARY bath XXXI Days.											
D	H	h	f	u	δ	n	♀	n	♂	f.	Heliocentric Longitude.										
D	H	Ω	h	Υ	u	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓
1	0	43	2	32	15	2	39	1	20	1	9										
13	0	44	2	28	1	17	2	53	3	7	20										
25	0	45	2	25	1	25	1	1	1	38	3	23									
Full Moon 9 day, 9 mor.										7 16 30 18 24 18 35 23 31 25 23 16 8											
Last Quart. 17 day, 2 mor.										13 16 40 18 49 19 33 28 46 14 54 28 11 19											
New Moon 23 day, 5 night										10 16 44 19 220 0 1 23 24 38 48 22											
First Quart. 30 day, 11 nig.										25 16 40 19 15 20 27 4 14 21 5 22											
M	W	Festival Days.		Aspects & Wea.		D	sets.	☉	H	h	u	♄	♀	♅	D	Diat.					
D	D							h	Ω	Υ	u	♄	♅	♆	Υ	mouth					
1	A	1 S. aft. Chr.		Snow		Morn	10	53	18	12	28	28	24	0	14	33					
2	M	[Circum.		☐ ☉ h		0	58	11	55	18	12	28	29	25	1	26					
3	T	2 ri. 1. 38m		or cold		2	2	12	56	18	12	28	29	26	2	8					
4	W	Sir Isaac N.		o. 1643		3	4	13	57	18	12	28	29	27	3	20					
5	T	O. d Chr. d.		rain,		4	2	14	58	18	12	29	u	28	3	2					
6	F	Epiphany		and		4	58	15	59	18	12	29	0	29	4	14					
7	S	♂ ri. 10. 35a		perhaps		5	48	17	0	18	12	29	0	f	4	26					
8	A	1 S. aft Epi.		Lucian		6	35	18	2	18	12	29	0	1	5	8					
9	M	Plow Mon.		ome		D	rif.	19	3	18	12	29	1	2	R	20					
10	T	♀ ri. 4. 13m		hunder		5a	52	20	4	18	12	29	1	3	5	2					
11	W	♂ ri. 10. 24a		♂ D H		6	54	21	5	18	12	29	1	4	4	14					
12	T	Old N. yrs. d				7	50	22	6	17	12	29	2	5	4	27					
13	F	Hil. C. T. b.		Stormy		9	4	23	7	17	12	29	2	6	3	9					
14	S	Ox. T. beg.		Δ ♂ ♀		10	23	24	8	17	12	29	2	7	2	22					
15	A	2 S. af. Epi.		and		11	21	25	9	17	12	29	2	9	1	5					
16	M	4 ri. o. 47m		☐ u ♀		Morn	26	10	17	13	0	2	10	0	18	38					
17	T	Old Twel. d.		♂ ☉ ♀		0	33	27	12	17	13	0	3	11	h	2					
18	W	Qu. birth d.		Prisca		1	46	28	13	17	13	0	3	12	28	16					
19	T	H fo. 1. 14m		♂ D ♀		2	59	29	14	17	13	0	3	13	26	0					
20	F	Fabian 1 re.		☐ ☉ u		4	9	u	15	17	13	0	3	14	25	15					
21	S	Agnes		Δ H ♀		5	15	1	16	17	13	0	3	15	24	0					
22	A	3 S. aft. Eph.		♂ D ♀		6	17	2	17	17	13	0	4	16	23	15					
23	M	Hil. T. beg.		troubl'd		D	sets	3	18	17	13	0	4	17	22	0					
24	T	♀ ri. 4. 34m		air with		5a	43	4	19	17	13	0	4	19	21	14					
25	W	Con. St. Pa.		rain or		6	58	5	20	17	13	0	4	20	20	29					
26	T	♂ rif. 9. 37a		fleet.		8	13	6	21	17	13	0	4	21	19	13					
27	F	Pr. Au. Fr. b				9	25	7	22	17	13	0	4	22	19	27					
28	S	[2 ret.		♂ D h		10	32	8	23	17	13	1	4	23	19	10					
29	A	4 S. aft. Eph.		More		11	39	9	24	17	13	1	4	24	10	22					
30	M	R. Ch. I. M.		mild		Morn	10	25	17	13	1	5	25	D	5	8					
31	T	Pheaf. sh. e.				0	43	11	26	17	14	1	5	27	10	17					
D	D	L	Sun	Sun	D	L	leng.	Day	Declination.												
		beg.	rife	fet.	ends	of D.	inc.		☉	f.	h	n	u	f.	♄	n	♀	f.	♅	f.	
1	5	59	8	5	3	55	6	1	7	50	0	7	23	1	2	34	9	48	2	54	
7	5	57	8	1	3	59	6	3	7	58	0	15	22	23	2	41	10	2	2	17	
13	5	52	7	5	4	6	6	8	8	12	0	29	21	29	2	40	10	14	1	46	
19	5	47	7	4	7	4	6	13	8	26	0	43	20	20	2	58	10	24	1	22	
25	5	41	7	3	0	4	21	6	19	13	42	0	59	18	57	13	0	10	32	1	
							</														

Geocentric Latitude.

FEBRUARY hath XXIX Days.

Heliocentric Longitude.

D	H	n	h	f.	4	n	δ	n	♀	♂	n	
1	0	44	2	24	1	22	3	20	2	16	2	17
13	0	44	2	21	1	24	3	35	1	33	0	6
25	0	44	2	19	1	27	3	45	0	48	1	28

Heliocentric Longitude.												
D	H	Ω	h	Υ	4	♊	♈	♉	♊	♈	♉	
1	16	54	19	29	20	59	7	4	15	39	4	43

Full Moon 8 day, 3 morn.

Last Quart. 15 day, at noon

New Moon 22 day, 5 mor.

First Quart. 29 day, 7 night

D	H	Ω	h	Υ	4	♈	♉	♊	♋	♌	♍	♎
1	16	54	19	29	20	59	7	4	15	39	4	43
7	16	59	19	42	21	26	9	41	25	19	25	39
13	17	3	19	54	21	54	12	19	4	58	14	46
19	17	8	20	7	22	21	14	57	14	34	1	48
25	17	12	20	10	22	48	17	35	24	9	17	39

M	W	Festival Days.	Aspects & Weat.	D fets	☉	H	h	4	♈	♀	♂	D	D lat. fourth
1	W	♀ rif. 4.47m	Modér.	1 42	12 26	17	14	1	5	28	19	29 21	4 10
2	T	Par. or C.d.	* ☉ h	2 41	13 27	17	14	1	5	20	19	11 11 13	4 41
3	F	Blase. 3 ret.	* 4 ♀	3 34	14 28	17	14	1	5	25	20	23 4	5 0
4	S	h fet 10.7 a	Snow	4 22	15 29	17	14	1	5	1	20	4 58	5 6
5	A	Septua. Su.	8 ☉ H	5 6	16 30	16	14	1	R	2	21	16 58	4 59
6	M	[Agatha and		5 45	17 30	16	14	1	5	4	22	29 6	4 39
7	T	♂ rif. 8.48 a	☐ ♂ ♀	6 39	18 31	16	14	1	5	5	22	11 12 24	4 5
8	W	♀ ri. 4.54 m	fleet.	Drife	19 32	16	14	1	5	6	23	23 53	3 19
9	T	4 return		6a49	20 32	16	14	1	5	7	24	6 33	2 23
10	F	Dies Sco. O.		7 58	21 33	16	14	1	5	8	25	19 23	1 18
11	S	H fo. 11.36 a	♂ D ♂	9 7	22 34	16	15	1	5	9	26	2 25	0 9
12	A	Sexages. S.	P. sh. en	10 18	23 34	16	15	1	5	11	27	15 30	1n 3
13	M	Hil. T. ends	O. C. d.	11 31	24 35	16	15	1	4	12	28	29 6	2 12
14	T	Valentine	Windy Morn	25 35	16	15	1	4	13	29	12m	16	3 15
15	W	h fet 9.29 a	with	0 41	26 36	16	15	R	4	14	30	26 41	4 8
16	T	Collop Th.	(☐ 4 ♀	1 53	27 36	16	15	1	4	15	1	10 40	4 46
17	F	4 ri. 10.45 a	fnow	2 58	28 37	16	15	1	4	16	3	25 10	5 8
18	S	♂ rif. 7.58 a	♂ D ♀	3 58	29 37	16	15	1	4	18	4	9 41	5 10
19	A	Quinquag.	Δ ☉ 4	4 51	30 38	16	15	1	4	19	5	24 15	4 52
20	M	Cam. Term	♂ D ♀	5 34	1 38	16	15	1	3	20	6	8 40	4 15
21	T	Shrove Tu.	or cold	6 13	2 39	16	16	1	3	21	8	23 15	3 23
22	W	Ash Wedn.	Δ H h	7 fets	3 39	16	16	1	3	22	9	7 27	2 18
23	T	Pr. Oeta. b.	rain.	6a59	4 39	16	16	1	3	23	10	21 19	1 7
24	F	St. Matthew	♂ D h	8 10	5 40	16	16	1	3	25	12	4 49	0 f 7
25	S	[P. Ad. F. b		9 19	6 40	16	16	1	2	26	13	17 57	1 18
26	A	S. in Lent	8 H ♀	10 26	7 40	16	16	1	2	27	15	0 8 42	2 23
27	M	♂ rif. 7.15 a		11 29	8 40	16	16	1	2	28	16	13 8	3 20
28	T	Hare-h. en.	Morn	9 41	16	16	1	2	29	18	25	19 4	7
29	W	Emb. week		0 30	10 41	15	16	1	1	30	19	7 19	4 42

D							Declination.									
	D. L. beg.	Sun rise	Sun set.	D. L. ends	leng. of D.	Day inc.	☉	f.	h	n.	4	1.	♂ n.	♀ 1.	♂ 1.	
1	5:32	727	433	6 28	9 6	1 23	17	5	3	23	10	38	1 0	21 11	22 21	
7	5:23	717	443	6 37	9 26	1 43	15	18	3	36	10	41	1 4	21 27	22 14	
13	5:14	7 6	454	6 46	9 48	2 5	13	21	3	50	10	41	1 19	21 21	22 16	
19	5:3	655	5 5	6 57	10 10	2 27	11	16	4	4	10	40	1 44	20 55	22 24	
25	4:50	642	5 18	7 10	10 36	3 53	9	4	4	20	10	36	2 18	20 8	22 35	

M	W	Festival	Aspects	D	○	H	h	2	♂	♀	♀	D	D	lat.
D	D	Days.	& Weat.	fets.	κ	Ω	Υ	μ	♂	♀	♀	II	II	fourth
1	T	St. David	Season-	1 26	11 41	15 16	1	1	2 21	19 12	5 5			
2	F	Chad	able at	2 17	12 41	15 17	1	1	3 22	19 5	5 14			
3	S	♀ rif. 5. 6 m	the be-	3 2	13 41	15 17	1	0	4 24	13 0	5 11			
4	G	2 S. in Lent	ginning	3 43	14 41	15 17	0	0	5 25	25 2	4 53			
5	M	♂ rif. 9. 38 a	♂ D H	4 20	15 41	15 17	0	0	7 27	7 Ω 16	4 22			
6	T	H fo. 10. 0 a	wind	4 53	16 41	15 17	0	κ	8 28	19 42	3 38			
7	W	Perpetua	Δ 2 ♀	5 23	17 41	15 17	0	29	9 κ	2 μ 24	2. 43			
8	T	♂ fet 8. 18 a	and	D rif.	18 40	15 17	0	29	10 2	15 21	1 38			
9	F	♂ fo. 0. 37 m	♂ D ♂	7 a 0	19 40	15 17	0	28	11 3	28 33	0 27			
10	S	♀ rif. 5. 3 m.	rain	8 12	20 40	15 18	0	28	13 5	12 Δ 0	on 47			
11	G	3 S. in Lent	with	9 24	21 40	15 18	0	28	14 7	25 39	2. 0			
12	M	Gregory	8 H ♀	10 39	22 40	15 18	0	27	15 8	9 μ 30	3 7			
13	T	H fo. 9. 34 a	nail and	11 49	23 39	15 18	0	27	16 10	23 29	4 3			
14	W	♂ rif. 9. 1 a	* ½ ♀	Morn	24 39	15 18	0	26	17 12	7 4 35	4 45			
15	T	♂ fo. 0. 7 m	8 ○ ♂	0 57	25 39	15 18	0	26	18 14	21 45	5 10			
16	F	♀ rif. 4. 59 a	variable	1 57	26 38	15 18	0	26	20 15	5 μ 58	5 17			
17	S	St. Patrick	weather	2 51	27 38	15 18	0	25	21 17	20 11	5 4			
18	G	4 S. in Lent		3 37	28 37	15 18	Δ	25	22 19	4 μ 21	4 32			
19	M	♂ rif. 8. 40 a	♂ D ♀	4 17	29 37	15 19	29	24	23 21	18 25	3 45			
20	T	♂ fo. 11. 42 a	8 ♂ ♀	4 50	γ 30	15 19	29	24	25 23	2 κ 21	2 44			
21	W	Benedict	♂ D ♀	5 21	1 30	15 19	29	24	21 25	16 5	1 35			
22	T	Cam. lat. act	note	D fets	2 30	15 19	29	23	27 27	29 35	0 21			
23	F	♂ rif. 8. 23 a	Δ 2 ♀	7 a 8	3 35	15 19	29	23	28 29	12 γ 50	of 52			
24	S	♀ rif. 4. 51 m	mild	8 15	4 34	15 19	29	23	29 γ	25 47	2 1			
25	G	5 S. in Lent	Lady da.	9 21	5 33	15 19	29	22	κ 3	8 8 27	3 2			
26	M	♂ fo. 11. 11 a	to the	10 23	6 33	15 19	29	22	2 5	20 52	3 54			
27	T	H fo. 8. 41 a	♂ ○ ♀	11 23	7 32	15 20	29	21	3 7	3 II 3	4 34			
28	W	♂ rif. 8. 3 a	end.	Morn	8 31	15 20	28	21	4 9	15 4	5 1			
29	T	♀ rif. 4. 46 m		0 16	9 30	15 20	28	21	5 11	26 59	5 15			
30	F	Cam. T. end	Δ H ♀	1 3	10 29	15 20	28	20	7 13	8 μ 51	5 15			
31	S	Ox. T. ends		1 47	11 28	15 20	28	20	8 15	20 47	5 2			

D	D. L.		Sun beg.	Sun rise	Sun set.	D. L.		length of D.	Day inc.	Declination.												
	ends	of D.				°	f.			h	n.	°	f.	h	n.	°	f.	h	n.			
1	4	42	633	527	7	18	1054	3	11	7	11	4	32	10	31	2	52	19	12	16	17	
7	4	29	621	539	7	31	1118	3	35	4	53	4	49	10	23	3	39	17	47	13	21	
13	4	16	6	551	7	44	1142	3	59	2	31	5	5	10	12	4	29	16	4	9	58	
19	4	3	557	6	3	7	57	12	6	4	23	0	9	5	22	10	0	5	19	14	5	11
25	3	49	545	615	8	11	1230	4	47	2	13	5	30	9	47	6	4	11	52	0	4	

Geocentric Latitude.

APRIL hath XXX Days.

D	Hn	h i.	4 n	♂ n	♀ f	♂ f.
1	0 43	2 16	1 32	3 10	1 6	0 23
13	0 43	2 16	1 33	2 40	1 27	1 n 47
25	0 42	2 16	1 32	2 8	1 38	2 45

Full Moon 7 day, 7 morn.
 Last Quart. 14 day, 1 morn.
 New Moon 21 day, 8 mor.
 First Quart. 29 day, 10 mor

Heliocentric Longitude.											
D	H	Ω	h	Υ	2	3	4	5	6	7	8
1	17	40	21	35	25	38	3	34	21	22	2 59
7	17	45	21	47	25	59	6	17	0	41	9 11 34
13	17	50	21	59	26	27	9	0	10	10	16 59
19	17	55	22	12	26	54	11	44	19	30	20 41
25	17	59	22	24	27	21	14	20	20	0	18 54

M	W	Festival Days.	Aspects & Weat.	D fets.	☉ Υ	H Ω	h Υ	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Diat. month
1	G	6 S. in Lent	Palm S.	2 26	12 27	15	20	26	20	9	1	2	49	4	36																							
2	M	[All Fool's	♂ h 8	2 59	13 26	15	20	28	19	10	10	15	3	3	57																							
3	T	Richard	Δ ☉ H	3 30	14 25	15	20	28	19	11	21	27	33	3	6																							
4	W	St. Ambrose	♂ D ♂	3 58	15 24	14	21	28	10	13	23	10	22	2	5																							
5	T	Maundy	O. La. d.	4 26	16 23	14	21	27	19	14	25	23	31	0	55																							
6	F	Good Frid.	Wind	4 54	17 22	14	21	27	18	15	27	7	1	0	20																							
7	S		and	D rif.	18 21	14	21	27	18	16	20	20	50	1	35																							
8	G	Easter Day	rain,	8a 30	19 20	14	21	27	18	18	8	4	m 57	2	45																							
9	M	Easter Mon.	and fo	9 46	20 19	14	21	27	18	19	3	19	17	3	47																							
10	T	Easter Tue	♂ ☉ h	10 56	21 17	14	21	27	17	20	5	3	4	44	4	34																						
11	W	Easter Wed.	conti-	Morn	22 16	14	21	27	17	21	7	18	12	5	4																							
12	T	4 fo. o. 14m	naeth	0 0	23 15	14	22	27	17	22	9	2	h 38	5	15																							
13	F	♂ fo. 9. 46a	to the	0 58	24 13	14	22	26	17	24	10	16	55	5	6																							
14	S	♀ ri. 4. 25m	♂ ☉ 2	1 46	25 12	14	22	26	17	35	12	1	4	4	39																							
15	G	1 S. aft. East.	□ H 8	2 26	26 11	14	22	26	17	26	14	15	0	3	56																							
16	M	[Low S.	Δ ♂ 8	3 1	27 9	14	22	26	16	27	15	28	43	2	59																							
17	T	4 fo. 11. 56a	new	3 31	28 8	14	22	26	16	28	17	12	14	1	54																							
18	W	O. & C. T. b.	♂ D ♀	3 59	29 6	14	22	26	16	Υ	18	25	31	0	48																							
19	T	Alphege	noon.	4 26	8 5	14	22	26	16	1	10	8	Υ 37	of 29																								
20	F	♀ rif. 4. 17m	♂ D h	4 52	1 3	14	23	26	16	2	21	21	20	1	38																							
21	S	♂ fet 9. 8m		D fets	2 2	14	23	25	16	3	22	4	8	10	2	41																						
22	G	2 S. aft. East.	♂ D 8	8a 19	3 0	D	23	25	16	4	23	16	38	3	35																							
23	M	1 return	Mild	9 19	3 58	14	23	25	16	6	24	28	50	4	18																							
24	T	[St. Geo.	and	10 14	4 57	14	23	25	16	7	25	11	II	3	4	47																						
25	W	St. Mark	Prs. M. b	11 5	5 55	14	23	25	16	8	25	23	2	5	7																							
26	T	[Term b.	pleasant	11 51	6 53	14	23	25	D	9	26	4	50	5	11																							
27	F	St Walburg	to the	Morn	7 52	14	23	25	16	11	27	16	48	5	2																							
28	S	♂ fet 9. 19a	end.	0 30	8 50	14	24	25	16	12	27	23	42	4	40																							
29	G	3 S. aft. East.	♂ D II	1 5	9 48	14	24	24	16	13	28	10	Ω 42	4	6																							
30	M	2 return	Δ H ♀	1 37	10 46	14	24	24	16	14	28	22	54	3	20																							

Geocentric Latitude.

MAY hath XXXI Days.

D	H	n	h	l.	4	n	δ	n	♀	1.	♀	n
1	0	42	2	16	1	31	1	53	1	39	2	20
13	0	42	2	17	1	29	1	25	1	33	of 24	
25	0	41	2	19	1	27	1	19	1	19	3	20

Full Moon 6 day, 5 night
 Last Quart. 13 day, 8 mor.
 New Moon 20 day, 10 nig.
 First Quart. 29 day, 2 mor.

D	H	n	h	γ	4	♄	♅	♆	♇	♈	♉	♊
1	18	3	22	38	27	48	17	15	8	39	12	7
7	18	8	22	51	28	16	20	2	18	10	2m	4
13	18	13	23	3	28	43	22	51	27	42	19	56
19	18	17	23	16	29	11	25	41	7	15	6	43
25	18	22	23	20	29	38	28	32	16	42	23	13

M	W	Festival Days.	Aspects & Weat.	D fets.	☉ 8	H 9	h 10	4 11	♄ 12	♀ 13	♅ 14	♆ 15	♇ 16	D 17	D lat. 18
1	T	St. Ph. & Jas.	♄ h 4	2 5	11 44	14 24	24 16	15 28	5 23	2 24					
2	W	4 fet 10.51a	Windy	2 32	12 42	14 24	24 16	17 29	18 11	1 19					
3	T	In. of the C.	with	2 59	13 40	14 24	24 16	18 29	1 24	0 8					
4	F	♄ fet 3. 1m	☉ ☉ H	3 26	14 38	14 24	24 16	19 R	15 2	In 6					
5	S	h rif. 3.56m	J. Port L	3 55	15 36	14 24	24 16	20 29	29 7	2 17					
6	G	4 S. af. East.	thowers	D ri. 16	34	14 25	24 16	21 28	13m	34	3	22			
7	M	Duc. York b	♄ 4 ♀	8a 43	17 32	14 25	24 16	23 28	28 18	4 15					
8	T	4 fo. 10.25a	♄ h ♀	9 52	18 30	15 25	23 17	24 28	13 ↑	12 4	51				
9	W	♀ ri. 3. 43 m	of rain.	10 56	19 28	15 25	23 17	25 28	28 7	5 7					
10	T	h rif. 3. 39 m		1 47	20 26	15 25	23 17	26 27	12h	54	5	3			
11	F	m		Morn	21 24	15 25	23 17	28 27	27 4	39					
12	S	Old May d.	Some	0 31	22 21	15 25	23 17	29 26	11	42	3	58			
13	G	5 S. af. East.	Rog. Su.	1 7	23 19	15 25	23 17	8 26	25 36	3 4					
14	M	4 return	pleasant	1 38	24 17	15 26	23 18	1 25	9	11	2	1			
15	T	4 fou. 9.55a	♄ ☉ ♀	2 7	25 15	15 26	23 18	2 24	22 26	0 52					
16	W	h ri. 3. 17m	thowers	2 33	26 13	15 26	23 18	4 24	5	26	0	17			
17	T	Ascen. day	♄ D h	2 59	27 10	15 26	23 18	5 23	18 12	1 25					
18	F	[or Holy T.	♄ D ♀	3 26	28 8	15 26	22 18	6 23	0 8	45	2	27			
19	S	Q. Charl. b.	♄ D ♀	3 53	29 6	15 26	22 19	7 22	13 9	3 21					
20	G	S. af. Ascen.	D fets	II 3	15 26	22 19	8 22	25 24	4 5						
21	M	4 afte. T. en		8a 8	1 15	26 22	19 10	21 7	13	4 37					
22	T	Prs. Eliz. b.		9 1	1 59	15 26	22 19	11 21	19 32	4 57					
23	W	♄ fet 1.50m		9 48	2 56	15 27	22 20	12 21	1 28	5 3					
24	T	Oxf. T. ends	Windy	10 32	3 54	15 27	22 20	13 20	13 20	4 57					
25	F	4 fou. 9. 12a	Δ ♂ ♀	11 6	4 51	15 27	22 20	15 20	25 11	4 37					
26	S	Aug. I. A Bp	☉ H ♀	11 39	5 49	15 27	22 21	16 20	7	4 4 6					
27	G	Whit Sund.	♄ D H	Morn	6 46	15 27	22 21	17 D	19 3	3 23					
28	M	Whit Mon.	with	0 8	7 44	15 27	22 21	18 20	1	2 31					
29	T	Whit Tues.	♄ ♀ ♀	0 34	8 41	15 27	22 22	19 20	13 38	1 30					
30	W	Ember We.	thowers	1 0	9 39	15 27	22 22	21 20	26 23	0 24					
31	T	h ri. 2. 21m	Δ ♂ ♀	1 26	10 36	15 27	22 22	22 20	0	32	on 4				

D	D. L.	Sun beg.	Sun rise	D. L.	eng. fet.	Day ends	of D.	inc.	☉	n	h	n	4 1.	♄ n	♀ n	♅ n	♆ n
1	1	59	436	7	24	10	1	14 48	7 5	15 22	7 23	8 10	7 7	4 44	22 13		
7	1	43	426	7	34	10	17	15 8	7 25	17 57	39	7 50	6 40	7 31	21 5		
13	1	15	416	7	44	10	45	15 28	7 45	18 37	7 54	7 43	6 10	10 12	18 54		
19	0	40	4 7	7	53	11	20	15 46	8 3	19 59	8 8	7 32	5 24	12 45	16 26		
25	all	3	59	3	1	Day	16	28 16	21 8	8 22	7 24	4 34	15 7	14 41			

Geocentric Latitude.

JUNE hath XXX Days.

D	H n	h f.	4 n	δ n	♀ 1.	♂ 1.
1	0 41	2 20	1 25	0 48	1 6	3 56
13	0 41	2 22	1 22	0 28	0 41	3 9
25	0 41	2 24	1 18	0 11	0 13	1 1

Heliocentric Longitude.

D	cl	cl	h	γ	4 m	δ m	♀ γ	♂ γ	♀ 1	♂ 1
1	18	27	23	43	0 10	1 53	27 59	13	7	
7	18	31	23	56	0 38	4 47	7 8 35	1	38	
13	18	36	24	9	1 5	7 43	17 11	22	33	
19	18	41	24	21	1 32	10 47	26 49	17	5	
25	18	46	24	34	2 0	13 39	6 11 28	16	27	

Full Moon 5 day, 1 morn.
 Last Quart. 11 day, 4 after.
 New Moon 19 day, 1 after.
 First Quart. 27 day, 2 after.

M	W	Festival Days.	Aspects & Weat.	D fets.	☉ II	H Ω	h γ	4 ♄	♂ ♄	♀ ♄	♂ ♄	D ♄	D lat. north
1	F	Nicomede	Season-	1 52	11 34	15 23	22 23	23 21	23 10	1 56			
2	S	♂ fet 1.12m	able all	2 23	12 31	15 28	21 23	24 21	7 11 17	3 0			
3	G	Trinity Su.	the fore	2 57	13 28	15 28	21 23	26 21	21 52	3 56			
4	M	K.G.III. b.	1 return	3 39	14 26	15 28	21 24	27 22	6 4 49	4 36			
5	T	P.Ern.A. b.	* ☉ H	D rif.	15 23	15 28	21 24	28 23	22 0	4 53			
6	W	Oxf.T. beg.	part of	9 36	16 21	15 28	21 24	29 23	7 15 15	4 59			
7	T	♀ rif.3.3 m	the	10 25	17 18	15 28	21 25	30 22	7 12 4	4 39			
8	F	Trin.T.beg	month.	11 6	18 15	15 28	21 25	2 25	7 12 4	4 0			
9	S	4 fet 1.35m	Δ ♂ ♀	11 40	19 12	15 28	21 25	3 20	21 40	3 7			
10	G	S. aft. Tri.	Ps Am. b	Morn	20 10	15 28	21 26	4 27	5 41 2	4			
11	M	St. Barnabas	Δ ☉ 4	0 9	21 7	15 29	21 26	5 28	19 17	0 55			
12	T	[2 return		0 35	22 4	16 29	21 27	7 29	2 28	of 14			
13	W	♀ ri. 2.57 m		1 1	23 2	16 29	21 27	8 15	20 1	21			
14	T	♂ ri. 2.49 m	♂ D h	1 27	23 59	16 29	21 28	9 1	27 54	2 23			
15	F	4 fet 1.10 n		1 55	24 56	16 29	21 28	10 2	10 8 16	3 16			
16	S	♂ fet 0.21 m		2 24	25 53	16 30	21 28	11 3	22 28	4 0			
17	G	S. aft. Tri.	St. Aliba.	2 5	26 51	16 29	D 29	13 5	4 11 32	4 32			
18	M	3 return	Some	3 34	27 4	16 29	21 29	14 6	16 31	4 52			
19	T	♂ ri. 2.47 m	* H ♀	D fets	28 45	16 29	21 29	15 7	23 26	4 59			
20	W	Transf. Ed.	K.W.S.	8 25	29 43	16 29	21 0	16 9	10 5 18	4 53			
21	T	Longest day	☉ ☉ ♂	9 4	29 47	16 29	21 1	18 11	22 10	4 35			
22	F	♀ ri. 2.57 m	rain and	9 37	1 37	16 29	21 1	19 12	4 12 2	4 4			
23	S		♂ D H	10 8	2 34	16 8	21 1	20 14	15 57	3 23			
24	G	S. aft. Tri.	* H ♀	10 34	3 32	16 0	21 2	21 15	27 58	2 32			
25	M	4 return	hunder	11 0	4 20	16 0	21 2	22 17	10 11 8	1 33			
26	T	[St.].C.E.	♂ ☉ ♂	11 24	5 26	16 0	21 3	24 19	22 32	0 29			
27	W	Tr.T. ends	* 4 ♀	11 50	6 23	16 0	21 3	25 21	5 15 15	on 38			
28	T	♂ rif. 2. 49	♂ D 4	Morn	7 20	16 0	21 4	26 23	18 20	1 45			
29	F	St. Pe. & P.		0 17	8 18	16 0	21 4	27 25	1 11 52	2 49			
30	S	Buckhun.b.		0 47	9 15	16 0	21 5	29 27	15 53	3 45			

Dog d. b.

D	D. L. Sun beg.	San rise	San fet.	D. L. ends	leng. of D.	Day inc.	☉ n.	h n.	4 1.	♂ n.	♀ n.	♂ n.
1		352	3 8		16 10	3 33	22 12	8 37	7 16	3 30	17 37	14 15
7		347	8 13		16 26	3 43	22 51	8 49	7 12	2 29	19 29	15 14
13	all	344	8 16	Day	16 32	3 40	23 17	9 0	7 11	1 23	21 2	17 8
19		343	3 17		16 34	3 51	23 27	9 10	7 12	0 14	22 14	19 31
25		343	3 17		16 34	8 51	23 23	9 10	7 15	of 50	13 4	21 53

Geocentric Latitude.

JULY hath XXXI Days.

D	Hn	h 1.	4n	δ n	♀ n	♂ n
1	0 40	2 25	1 17	0 30	2 0	10
13	0 40	2 28	1 14	0 30	1 41	41
25	0 40	2 31	1 11	0 23	0 55	1 32

Full Moon 4 day, 7 morn.
Last Quart. 11 day, 2 mor.
New Moon 19 day, 4 mor.
First Quart. 26 day, midn.

Heliocentric Longitude.									
D	H	Ω	h	Υ	4	μ	δ	μ	♀
1	18	50	24	47	2	27	16	40	16
7	18	55	24	59	2	55	19	43	25
13	18	59	25	12	3	22	22	47	55
19	19	4	25	25	3	50	25	53	15
25	19	0	25	38	4	18	20	1	24

M	W	Festival Days.	Aspects & Weat.	D sets.	☉	H	h	4	δ	♀	♂	D	D lat. north.
D	D				☿	Ω	♈	♉	♊	♋	♌	♍	
1	G	4 S. aft. Tr.	* ♀ ♀	1 28	10 12	16	0 21	5	0	29	0	22	4 28
2	M	Visit V. M.	♂ ♀ ♀	2 9	11 9	16	0 21	6	1	30	15	7	4 55
3	T	Cam. Com.	Windy	3 2	12 6	17	0 21	6	2	3	0 5	29	5 1
4	W	T. St. Mart.	with	D rif.	13 3	17	0 32	7	3	5	15	49	4 46
5	T	Old Mid. d.	☐ ♂ ♀	8a 54	14 1	17	0 22	7	5	7	1 3	6	4 11
6	F	Cam. T. en.	hasty	9 34	14 58	17	1 22	8	6	9	16	7	3 19
7	S	Th. a Beck.	showers	10 6	15 55	17	1 22	8	7	11	0 8	46	2 14
8	G	5 S. aft. Tri.	☐ ♂ ♀	10 34	16 52	17	1 22	9	8	14	14	57	1 3
9	M	Oxford Act	and	11 2	17 49	17	1 22	0	10	10	28	29	of 9
10	T	4 fet 11.28a	♂ ☉ ♀	11 27	18 47	17	1 22	10	11	18	11 9	55	1 19
11	W	♂ fet 10.55a	☐ 4 ♀	11 54	19 44	17	1 2	10	12	20	24	46	2 22
12	T	♀ ri. 11.33a	thunder	Morn	20 41	17	1 22	11	13	22	7 8	18	3 17
13	F	♀ ri. 3.13 m		0 23	21 38	17	1 22	12	14	24	19	35	4 2
14	S	Oxf. T. ends	☐ ☉ 4	0 54	22 35	17	1 22	12	16	26	1 11	41	4 35
15	G	6 S. aft. Tr.	Swithin	1 20	23 33	17	1 22	13	17	28	13	39	4 56
16	M	4 fet 10.37a	☐ ♀ ♀	2 10	24 30	17	1 22	13	18	Ω	25	33	5 3
17	T	♂ fet 10.36a	3 rick	2 57	25 27	17	1 22	14	19	3	7 3	24	4 53
18	W	♂ ri. 11.11a	♂ ♀ ♀	3 46	26 25	17	1 22	14	21	5	19	16	4 39
19	T	♀ ri. 3.32 m	☐ 4 ♀	D fet	27 22	17	1 23	15	22	7	1 Ω	0	4 9
20	F	Margaret	♂ ♀ H	8a 7	28 19	18	1 23	15	23	8	13	6	3 27
21	S	4 fet 10.45a	gales,	8 37	29 17	18	1 23	16	24	10	25	7	2 36
22	G	7 S. aft. Tr.	with	9 4	Ω 14	18	1 23	16	26	12	7 12	15	1 37
23	M	[Magdalen	cooling	9 27	1 11	18	1 23	17	27	14	19	33	0 32
24	T	Mag. Col. E.	* H ♂	9 52	2 9	18	1 23	18	28	16	2 2	2	on 35
25	W	St. James	♂ ♀ ♂	10 18	3 6	18	1 23	18	20	18	14	48	1 42
26	T	St. Ann	☐ ♀ ♀	10 46	4 3	18	1 23	19	Ω	20	27	52	2 45
27	F	[M.V.M.	showers	11 20	5 1	18	1 23	19	2	21	11 m	20	3 41
28	S	♀ ri. 3.41 m	* 4 ♀	11 59	5 58	18	2 23	20	3	23	25	12	4 26
29	G	8 S. aft. Tr.		Morn	6 50	18	2 24	20	4	25	9 1	30	4 56
30	M	4 fet 10.11a		0 47	7 53	18	2 24	21	5	26	24	11	5 8
31	T	♂ fet 9.53a		1 42	8 50	18	2 24	22	7	28	0 5	10	4 59

Declination.									
D	D. L.	Sun beg.	Sun rise	D. L.	Day ends	of D.	dec.	☉ n.	h n.
1		34 6	8 14		16 28	0 6	23 4	9 27	7 21
7	all	34 6	8 11	Day	16 22	0 12	22 31	9 34	7 29
13		3 55	8 5		16 10	0 24	21 43	9 39	7 39
19		4 2	7 58		15 56	0 38	20 43	9 44	7 52
25	0 50	4 10	7 50	11 10	15 40	0 54	19 26	9 47	3 6

D	Hn	h l.	2 n	δ l.	♀ n	♂ l.
1	0 40	2 33	1 9	0 29	1 6	0 52
13	0 40	2 36	1 6	0 39	1 20	0 50
25	0 40	2 39	1 4	0 48	1 25	2 27

Full Moon 2 day, 2 afternoon
 Last Quart. 9 day, 3 afternoon
 New Moon 17 day, 7 night
 First Quart. 25 day, 7 morn.
 Full Moon 31 day, 10 night.

Heliocentric Longitude.											
D	H	Ω	h	γ	2	μ	♂	♀	♀	Ω	♂
1	19	14	25	52	4	40	2	43	6	22	25 50
7	19	19	26	55	5	17	5	50	16	7	14 m 15
13	19	23	26	18	5	44	9	10	25	5	1 10
19	19	28	26	30	6	11	12	26	5 m 23	17	48
25	19	33	26	43	6	30	15	45	15	23	4 32

M	W	Festival Days.	Aspects & Wea.	D sets.	☉ Ω	H Ω	h 8	2 =	♂ =	♀ Ω	♀ μ	D ♄	D. at. north
1	W	Lammas	Showers	2 50	9 48	10	2 24	22	8	0	24	19	4 39
2	T	h ri. 10. 14 a	Δ h ♂	D ris.	10 45	10	2 24	23	9	1	9 ²⁴	28	3 41
3	F	4 set 9. 56 a	Thund.	8 a 2	11 43	18	2 24	23	10	3	24	27	2 38
4	S	♂ set 9. 41 a	♂ 2 ♂	8 33	12 40	18	2 24	24	12	4	9 ²⁴	8	1 25
5	G	9 S. aft. Tr.	and	9 3	13 33	19	2 24	25	13	6	23	24	0 8
6	M	Tr. of God	♂ ☉ ♀	9 30	14 35	19	2 25	25	14	7	7 ²⁴	12	1 f 6
7	T	then name	♂ D h	9 50	15 33	19	2 25	26	15	9	20	34	2 15
8	W	of Jesus	hail.	10 25	16 30	19	2 25	26	17	10	38	30	3 14
9	T	4 set 9. 34 a	♂ H ♀	10 58	17 28	19	2 25	27	18	12	16	5	4 3
10	F	St. Lawren.	Dog d. e.	11 32	18 25	19	2 25	28	19	13	28	22	4 39
11	S	Pr. Brunf. b.	♂ ☉ H	Morn	19 23	19	2 25	29	20	14	10 ²⁴	27	5 1
12	G	10 S. aft. T.	Old Lan.	0 10	20 21	19	2 25	29	21	16	22	24	5 11
13	M	[Pr. Wa. b.		0 54	21 18	19	R 20	m 23	17	4 ²⁴	10	5 7	
14	T	♂ set 9. 13 a	Showers	1 42	22 16	19	2 21	0 24	18	16	7	4 50	
15	W	Af. B. V. M.	with	2 35	23 14	19	2 21	1 25	19	28	0	4 21	
16	T	Du. York b.	♂ h ♂	3 35	24 12	19	2 21	1 26	21	9 Ω	58	3 39	
17	F	h ris. 9. 17 a	♂ D ♀	D sets	25 9	19	2 26	2 28	22	22	2	2 48	
18	S	4 set 9. 3 a	thunder	7 a 10	26 7	19	2 26	3 29	23	4 ²⁴	14	1 48	
19	G	11 S. aft. T.	♂ D ♀	7 35	27 5	19	2 26	3 ²⁴	24	16	35	0 43	
20	M	B. G. sh. beg.	Δ h ♀	8 1	28 3	19	2 27	4 125	29	0	on 20		
21	T	D. Clarence		8 27	29 1	19	2 27	5 3	26	11 =	50	1 34	
22	W	[born	♂ D 2	8 56	29 59	20	2 27	5 4	27	24	47	2 39	
23	T			9 26	m 57	20	2 27	6 5	28	8 m	0	3 37	
24	F	St. Barthol	Season-	10 1	1 54	20	2 27	6 6	28	21	31	4 25	
25	S	h rise 8. 48 a	able	10 44	2 52	20	2 27	7 8	29	5 ²⁴	20	4 58	
26	G	12 S. aft. T.	to the	11 36	3 50	20	2 28	8 9	30	19	27	5 14	
27	M	4 set 8. 32 a	end.	Morn	4 48	20	2 28	8 10	1	3 ²⁴	51	5 11	
28	T	St. Ausin		0 35	5 46	20	2 28	9 11	1	13	20	4 48	
29	W	St. John B.		1 46	6 44	20	2 28	10 13	2	3 ²⁴	15	4 6	
30	T	[beheaded		3 0	7 43	20	1 28	10 14	2	18	3	3 7	
31	F			D rise	8 41	20	1 28	11 15	2	2 ²⁴	45	1 56	

D	D. L.		Sun	Sun	D. L.		leng.	Day	Declination.													
	beg.	rife	set.	ends	of D.	dec.	☉	n	h	n	24	i.	♂	i	♀	n	♂	n				
1	1	23	421	739	10	37	15	18	1	16	17	40	9	49	8	23	9	18	19	15	12	13
7	1	45	431	729	10	15	14	58	1	36	16	12	9	40	8	42	10	42	17	18	8	10
13	2	7	441	719	9	53	14	38	1	56	14	25	9	49	9	2	12	6	15	3	4	13
19	2	26	451	7 9	9	34	14	18	2	16	12	30	9	47	9	23	13	28	12	34	0	36
25	2	44	5 2	6 58	9	16	13	56	2	38	10	28	9	47	0	44	14	40	9	52	2	127

D	H _{II}	h f	u n	♂ f.	♀ n	♂ f.
1	0 40	2 41	1 3	0 52	1 24	3 46
13	0 41	2 42	1 1	0 59	1 14	3 48
25	0 41	2 46	0 59	1 5	0 56	0 20

Last Quart. 8 day, 7 morn
New Moon 16 day, 9 mor.
 First Quart. 23 day, 2 aft.
Full Moon 30 day, 0 mor.

Heliocentric Longitude.											
D	H	Ω	h	Υ	u	n	♂	♀	♀	♂	♂
1	19	38	26	58	7	11	19	39	26	44	25 21
7	19	42	27	11	7	38	23	2	6	26	15 21
13	19	47	27	23	8	6	26	27	16	8	8 32
19	19	52	27	36	8	33	29	54	25	47	6 12
25	10	57	27	49	9	1	3	23	5	25	9 8 9

M	W	Festival Days.	Aspects & Weat.	D	rites.	☉	H	h	u	δ	♀	♀	♀	D	lat. north	
D	D					☉	Ω	h	u	δ	♀	♀	♀	☉		
1	S	Giles	Part. fh.	7	7	9	39	20	1	20	12	16	3	17	14	0 30
2	G	13 S. aft. T.	{beg.	7	36	10	37	20	1	20	12	17	3	17	24	of 39
3	M	[Lon. burnt	Good	8	4	11	35	20	1	29	13	19	R	15	11	1 53
4	T	u fet 8. 6 a	♂ D h	8	33	12	33	20	1	29	14	20	3	28	35	2 50
5	W	♂ fet 8. 35 a	Harvest weather	9	4	13	32	20	1	29	14	21	3	11	8	3 53
6	T			9	37	14	30	20	1	20	15	22	3	24	13	4 34
7	F	Enurachus		10	17	15	28	21	1	17	16	24	2	6	11	5 2
8	S	Na. B. V. M.		10	57	16	27	21	1	0	16	25	2	18	41	5 15
9	G	14 S. aft. T.	* ☉ ♂	11	44	17	25	21	1	0	17	26	1	0	38	5 15
10	M	h rif. 7. 48 a	Showers	Morn	18	23	21	1	0	18	27	1	12	30	5	1
11	T	u fet 7. 43 a	♂ ♀ ♂	0	37	19	22	21	1	0	18	27	0	24	22	4 35
12	W		and	1	33	20	20	21	1	1	10	27	1	18	3	56
13	T	♀ fet 6. 46 a	♂ h u	2	34	21	19	21	1	1	20	27	1	18	20	3 7
14	F	Holy Cross	thunder	3	36	22	17	21	1	1	20	27	1	18	20	3 7
15	S	Buck-hu. e.		4	40	23	16	21	1	1	21	4	26	12	57	1 3
16	G	15 S. aft. T.	♂ ☉ ♂	D	fets	24	15	21	1	1	22	5	25	25	34	on 7
17	M	Lambert	* ♂ ♂	6	39	25	13	21	1	2	22	6	2	8	25	1 17
18	T	h rif. 7. 20	♂ D u	7	7	26	12	21	1	2	23	7	23	21	31	2 25
19	W	Ember We.		7	38	27	11	21	1	2	24	9	22	4	50	3 26
20	T	♂ fet 7. 52 a	♂ D ♂	8	13	28	10	21	1	2	24	10	21	18	22	4 17
21	F	St. Matt.	Season-	8	54	29	8	21	0	2	25	11	20	2	4	54
22	S	K. G. III. cr.	able,	9	41	30	7	21	0	3	26	12	20	16	2	5 14
23	G	16 S. aft. T.	with	10	38	1	6	21	0	3	27	14	19	0	7	5 15
24	M	h rif. 6. 58	some	11	41	2	5	21	0	3	27	15	10	14	10	4 58
25	T	♂ fet 7. 42 a	showers	Morn	3	4	22	0	3	28	16	10	20	28	38	4 22
26	W	St. Cyprian	towards	0	53	4	3	22	0	3	29	17	18	12	59	3 30
27	T		the end.	2	7	5	2	22	0	4	20	10	10	27	19	2 24
28	F	Sh. L. fwor.		3	22	6	1	22	0	4	21	10	10	11	33	1 10
29	S	St. Michael	Ps C. Ab	4	30	7	0	22	0	4	21	10	10	25	30	of 7
30	G	17 S. aft. Tr.	St. Jero.	D	rif.	7	59	22	0	4	22	20	9	31	1	23
		[Hare-h. b.														

D	D L	Sun	Sun	D. L.	leng.	Day	Declination.																	
							beg.	rife	set.	ends	of D.	dec.	☉	n.	h	n.	u	i.	♂	f.	♀	n.	♂	f.
1	3	5	516	644	8	55	13	28	3	6	7	58	9	32	10	11	16	20	6	32	4	45		
7	3	21	527	633	8	30	13	6	3	28	5	44	9	32	10	34	17	35	3	32	5	0		
13	3	35	530	621	8	21	12	42	3	52	3	27	9	25	10	59	18	46	0	29	2	50		
19	3	40	550	610	8	11	12	20	4	14	1	7	9	17	11	23	19	53	2	36	on	50		
25	4	2	6	2	55	58	7	53	11	56	4	38	15	13	9	8	11	48	20	54	15	30	4	3

D	H	n	h	f.	u	n	δ	f.	♀	n	♂	n
1	0	41	2	46	0	59	1	7	0	45	1	11
13	0	41	2	47	0	58	1	11	0	17	1	57
25	0	42	2	47	0	57	1	14	0	14	1	3

Last Quart, 8 day, 2 morn,
New Moon 15 day, 11 night
 First Quart. 22 day, 8 night
Full Moon 29 day, 10 night

Heliocentric Longitude.

D	H	Ω	h	Υ	u	m	δ	h	♀	n	♂	n
1	20	1	28	2	9	29	6	54	15	1	16	13
7	20	6	28	14	9	56	10	27	24	36	23	10
13	20	11	28	27	10	24	14	1	4	49	26	Ω 2
19	20	16	28	40	10	51	17	38	13	41	23	♂ 13
25	20	20	28	53	11	19	21	16	23	12	15	50

M	W	Festival Days.	Aspects & Weat.	D	☉	H	h	u	δ	♀	♂	D	D lat. south
D	D			rises.	☿	Ω	8	m	1	☿	☿	Υ	
1	M	Remigius	♂ D h	6 50	8 58	22	0	4	2	24	21	23	7 2 33
2	T	[Ph. th. be.	Season-	7 11	9 57	22	0	5	3	25	22	6 8	25 3 32
3	W	♂ set 7. 28	able	7 43	10 56	22	0	5	4	26	23	19	22 4 19
4	T		all the	8 21	11 55	22	0	5	4	27	24	2 11	1 4 52
5	F		fore	9 1	12 55	22	Υ	5	5	28	25	14	23 5 11
6	S	Faith	part.	9 46	13 54	22	29	5	6	m	26	26	32 5 15
7	G	18 S. aft. T.		10 37	14 53	22	29	6	6	1	28	8 25	30 5 5
8	M	h rif. 6. 6a		11 31	15 53	22	29	6	7	2	29	20	22 4 43
9	T	♂ rif. 5. 6m		Morn	16 52	22	29	6	8	3	☿	2m	14 4 8
10	W	O. & C. T. b.	♂ D H	0 22	17 51	22	29	6	9	5	2	14	10 3 23
11	T	h rif. 5. 54a	♂ h ♀	1 31	18 51	22	29	6	10	6	4	26	15 2 28
12	F	♀ set 6. 0a		2 34	19 50	22	29	7	10	7	5	8m	32 1 25
13	S	Tr. K. Edw.	Showers	3 39	20 50	22	29	7	11	8	7	21	6 0 17
14	G	19 S. aft. T.	♂ D ♀	4 47	21 50	22	29	7	12	10	9	3 25	58 on 53
15	M	♂ set 7. 12a	* ♂ ♀	D sets	22 49	22	29	7	12	11	10	17	10 2 2
16	T		♂ D u	5a45	23 49	22	29	8	13	12	12	om	40 3 6
17	W	Ethel. Virg.	and	6 19	24 49	22	29	8	14	13	14	14	26 4 1
18	T	St. Luke	windy.	6 59	25 48	23	28	8	14	15	15	28	26 4 41
19	F	St. Frideswi.		7 44	26 48	23	28	8	15	16	17	12 1	35 5 6
20	S			8 39	27 48	23	28	8	16	17	19	26	50 5 11
21	G	20 S. aft. T.		9 40	28 48	23	28	9	17	18	21	11 1	5 4 58
22	M	h rif. 5. 11a	* H ♀	10 50	29 47	23	28	9	17	20	22	25	17 4 26
23	T	♂ rif. 6. 19m	Wind,	Morn	m 47	23	28	9	18	21	24	9 2	26 3 38
24	W	♀ set 5. 45a	☐ H ♀	0 1	1 47	23	28	9	18	22	26	23	29 2 38
25	T	K. G. III. ac.	Crispin	1 15	2 47	23	28	10	20	23	27	7 2	24 1 28
26	F	K. G. III. pr.	rain,	2 28	3 47	23	28	10	20	25	29	21	12 0 14
27	S		and	3 42	4 47	23	28	10	21	26	m	4 2	50 0 59
28	G	21 S. aft. T.		4 54	5 47	23	28	10	22	27	2	18	18 2 9
29	M	[Sim. & Ju.	Δ H ♂	D rif.	6 47	23	28	10	23	28	4	1 8	33 3 10
30	T	♂ set 6. 56a	(♂ D h	5a45	7 47	23	27	11	23	1	6	14	35 4 0
31	W	♀ set 5. 40a	hail.	6 20	8 47	23	27	11	24	1	7	27	23 4 37

Declination.

D	D. L.	Sun beg.	Sun rise	D. L.	leng. ends	Day of D.	dec.	☉	1.	h	n	u	1.	♂	1.	♀	1.	♂	n
1	4	15	6 14	5 46	7 45	11 32	5 2	3	33	8	59	12	14	21	50	8	38	4	36
7	4	28	6 26	5 34	7 32	11 8	5 26	5	52	8	40	12	40	22	39	11	30	2	29
13	4	41	6 38	5 22	7 19	10 44	5 50	8	8	8	39	13	6	23	20	14	13	1	13
19	4	53	6 50	5 10	7 7	10 20	6 14	10	21	8	29	13	31	23	54	16	43	5	28
25	5	37	4 45	6 57	9 58	6 36	12 27	8	19	13	56	24	20	18	58	9	44		

Geocentric Latitude.								Heliocentric Longitude.												
L	Hn	h 1.	2n	♂	♀	♂	n	D	H	m	h	r	u	m	♂	v	♀	h	♂	m
1	0 42	2 47	0 56	1 15	0 33	0 17		1	20	25	29	7	11	51	25	35	4	17	8	22
13	0 43	2 45	0 56	1 17	1 2	1f. 1		7	20	30	29	20	12	19	29	14	13	46	25	46
25	0 43	2 43	0 56	1 16	1 17	2 1		13	20	35	29	33	12	46	2 ⁵⁷	57	23	15	12	22
Last Quart. 6 day, 11 night								19	20	39	29	46	13	14	6	42	2 ⁵⁷	44	28	57
New Moon 14 day, 11 mor.								25	20	44	20	50	13	4	10	27	12	13	10	15
First Quart. 21 day, 4 mor.																				
Full Moon 28 day, 2 after.																				

M	W	Festival Days.	Aspects & Weat.	D	risef.	☉	m	H	h	u	♂	♀	♂	♀	D	lat.	
D	D															fouth	
1	T	All Saints	♂ ☉ ♀	6a58	9	47	23	27	11	25	2	0	9	56	4	50	
2	F	All Souls	Pr. E. b.	7 41	10	48	23	27	11	26	3	10	22	15	5	7	
3	S	1 return	Allf. C. c.	8 30	11	48	23	27	11	26	5	12	4 ⁵²	22	5	1	
4	G	22 S. aft. T.	Re. 1638	9 23	12	48	23	27	12	27	6	14	16	19	4	42	
5	M	Powd. plot	Wind &	10 10	13	48	23	27	12	28	7	15	28	11	4	11	
6	T	Mic. T. beg.	rain.	11 10	14	49	23	27	12	29	8	17	10	1	3	30	
7	W		♂ ☽ H	Mon	15	40	23	27	12	29	9	18	21	55	2	30	
8	T	Ps. A. So. b.		0 10	16	40	23	27	13	h	11	20	3 ⁵²	50	1	40	
9	F	L. M. D. Lo.	☐ H ♀	1 23	17	50	23	27	13	1	12	22	16	16	0	36	
10	S	h fo. 10. 36 a		2 2	18	50	23	27	13	2	13	23	28	53	0	32	
11	G	23 S. aft. T.	St. Mar.	3 38	19	51	23	27	13	2	14	25	11 ⁵²	52	1	40	
12	M	2 return	Some	4 48	20	51	23	27	13	3	16	26	25	10	2	44	
13	T	Britius	♂ ☽ u	5 8	21	52	23	26	14	4	17	28	9m	5	3	41	
14	W	♀ fet 5. 39 a	☐ ☉ H	D fet	22	52	23	26	14	5	18	20	23	17	4	25	
15	T	Machutus	♂ ☽ ♀	5a30	23	53	23	26	14	5	19	2	7 45	4	54		
16	F	♂ fet 6. 44 a	flowers	6 28	24	54	23	26	14	6	21	3	22	24	5	3	
17	S	Hu. B. Linc.	♂ ☽ ♂	7 30	25	54	23	26	15	7	22	4	7 50	6	4	53	
18	G	24 S. aft. T.	Δ H ♀	8 37	26	55	23	26	15	8	23	6	21	42	4	24	
19	M	3 return		9 50	27	55	23	26	15	8	24	7	6 ⁵⁷	9	3	35	
20	T	Edm. K. M.	Season-	11 2	28	56	23	26	15	9	26	9	20	21	2	30	
21	W	♀ fet 5. 40 a	able	Morn	29	57	23	26	15	10	27	10	4 58	19	1	32	
22	T	Cecilia	to the	0 16	1	58	23	26	16	11	28	12	18	1	0	20	
23	F	St. Clement	end.	1 28	1	58	23	26	16	12	29	13	1 53	30	of	51	
24	S	h fo. 9. 36 a		2 40	2	59	23	26	16	12	h	15	14	46	1	59	
25	G	25 S. aft. T.		3 50	4	0	23	26	16	13	2	16	27	50	2	59	
26	M	4 return		4 56	5	1	23	26	17	14	3	18	10 8	43	3	48	
27	T	♂ fet 6. 40 a		6 2	6	2	23	26	17	15	4	19	23	26	4	26	
28	W	Mic. T. en.		D rif.	7	2	R	26	17	15	5	21	5 52	59	4	50	
29	T	B. Col. elec.	Δ H ♀	5a31	8	3	23	26	17	16	7	22	18	20	5	0	
30	F	St. Andrew	* u ♂	6 16	9	4	23	25	17	17	8	24	0 52	32	4	56	
[Anni. me				Roy. So.													

D	D. L.		Sun	Sun	D. L.	leng.	Day	Declination.									
	beg.	rife	fet.	ends	of D.	dec.	☉	1.	h n.	u	1.	♂	1.	♀	1.	♂	f.
1	5 15	7 14	44 6	6 45	9 32	7 2	14	46	8	7	14	25	24	38	21	24	14 21
7	5 22	7 24	43 6	6 38	9 12	7 22	16	35	7	59	14	40	24	44	22	45	17 51
13	5 31	7 34	42 6	6 20	8 52	7 42	18	15	7	50	15	13	24	40	23	54	20 49
19	5 38	7 43	41 7	6 22	8 34	8 0	19	43	7	43	15	37	24	26	24	37	23 11
25	5 51	7 44	40 9	6 16	8 18	8 16	20	58	7	36	15	50	24	2	24	54	24 50

Heliocentric Longitude.

L	11.	h1.	4n	3f.	♀1.	♂1
1	0	44	2	42	0	55
13	0	44	2	38	0	56
25	0	45	2	35	0	56

Last Quart. 6 day, 7 night

New moon 13 day, 10 ni.

First Quart. 20 day, 2 after.

Full Moon 28 day, 8 mor.

D	H	Ω	h	8	4	m	♂	♀	♂	♀
1	20	48	0	11	14	9	14	13	21	42
7	20	53	0	24	14	37	18	1	1	13
13	20	57	0	37	15	5	21	48	10	43
19	21	2	0	50	15	32	25	37	20	15
25	21	7	1	3	16	0	29	25	29	47

M	W	Festival	Aspects	D	☉	H	h	4	♂	♀	♂	♀	D	D	lat.	
D	D	Days.	& Weat.	rises.	↑	Ω	γ	m	♂	♀	♂	♀	☉		South	
1	S	h fou. 9. 5a	Δ h ♀	7 9	10 5	23	25	18	18	9	25	21	24	4	39	
2	G	Advent Su.	Windy	8 1	11 6	23	25	18	18	10	27	24	29	4	9	
3	M	♂ fet 6. 38a	at the	8 58	12 7	23	25	18	19	12	28	6Ω	18	3	29	
4	T	♀ fet 5. 57a	♂ D H	9 58	13 8	23	25	18	20	13	29	18		7	40	
5	W	4 ri. 5. 43m	begin-	11 0	14 0	23	25	18	21	14	1	29	59	1	44	
6	T	Nicholas	ning.	Morn	15 10	23	25	19	22	15	3	11	52	0	43	
7	F	♂ fet 5. 2 a		0 3	16 11	23	25	19	22	17	4	24	13	on	22	
8	S	Co. B. V. M.	Showers	1 10	17 12	23	25	19	23	18	5	6	47	1	27	
9	G	2 S. in Adv	* 4 ♀	2 16	18 13	23	25	19	24	19	7	19	44	2	30	
10	M	h fo. 8. 25a	□ h ♂	3 26	19 14	23	25	19	25	20	8	3	m	9	27	
11	T	4 rif. 5. 17m	♂ D 4	4 40	20 15	23	25	20	25	22	9	17		4	13	
12	W	♂ fet 6. 36a	of rain.	5 52	21 16	23	25	20	26	23	11	1	↑	27	4	45
13	T	Lucy	□ h ♀	D fets	22 17	23	25	27	27	24	12	16		13	5	0
14	F	♀ fet 5. 9 a	Δ ☉ H	5 a 3	23 18	23	25	20	28	25	13	1	15	4	54	
15	S	♀ fet 6. 21 a	Δ ☉ h	6 6	24 20	23	25	20	29	26	14	16		22	4	27
16	G	3 S. in Adv.	Ca. T. en	7 19	25 21	23	25	21	29	28	15	1	23	3	42	
17	M	Oxf. T. end	Δ ☉ h	8 36	26 22	23	25	21	2	20	16	16		12	2	43
18	T	h fo. 7. 48 a	Frosty	9 52	27 23	23	25	21	1	2	17	0	40	1	34	
19	W	Ember We.	with	11 5	28 24	23	25	21	2	1	17	14		47	0	21
20	T	4 rif. 4. 45m	♂ ♂ ♀	Morn	29 25	23	25	21	3	3	18	28	30	0	15	2
21	F	St. Thomas	fnow	0 17	27 23	23	25	22	3	4	18	11	1	53	1	59
22	S	♂ fet 6. 35 a	or	1 28	1 28	23	25	22	4	5	19	24		58	2	59
23	G	4 S. in Adv.	♂ D h	2 35	2 20	23	25	22	5	6	18	7	8	47	3	49
24	M	♀ fet 6. 43 a	rain.	3 42	3 30	23	25	22	6	8	19	20		24	4	26
25	T	Christmas d	Trou-	4 44	4 31	23	25	22	6	9	18	2	11	59	4	50
26	W	St. Stephen	bled air,	5 43	5 32	23	25	23	7	10	18	15		6	5	0
27	T	St. John	□ H 4	6 38	6 34	23	D	23	8	11	12	27		15	4	57
28	F	Innocents	with	D rif.	7 35	23	25	23	9	12	16	9	17	4	40	
29	S	h fou. 6. 58a	rain or	5a 39	8 36	23	25	23	10	14	15	21		14	4	11
30	G	Su. aft. Chr.	fnow	6 35	9 37	23	25	23	10	15	14	3	Ω	5	3	31
31	M	Silvester	♂ D H	7 35	10 38	23	25	24	11	16	13	14		54	2	42

Declination.

D	D. L.	Sun	Sun	D. L.	leng.	Day	☉	f.	h	n	4	f.	♂	f.	♀	f.	♂	f.
	beg.	rife	fet.	ends	of D.	dec.												
1	5	50	7	58	4	2	6	10	8	4	8	30	21	59	7	31	16	21
7	5	53	8	3	3	57	6	7	7	54	8	40	22	45	7	27	16	41
13	5	55	8	7	3	53	6	5	7	46	8	46	23	14	7	25	17	1
19	5	57	8	8	3	52	6	3	7	44	8	50	23	27	7	24	17	20
25	5	57	8	8	3	52	6	3	7	48	8	50	23	23	7	24	17	38

Answers to the ENIGMAS, REBUSES, CHARADES, &c.

<i>Enigmas.</i>		<i>Rebusses.</i>
I. Sign.	VII. Walking-stick.	I. Mansfield.
II. O.	VIII. Money.	II. Tongue.
III. Black-Pudding.	IX. Winter.	III. Esther Lee.
IV. Bees.	X. Love.	IV. Fox.
V. Fan.	XI. Attraction.	V. Livan.
VI. Advice.	XII. or Prize. Heart.	VI. Heath.

Charades.

I. Sapcoat.	V. Sackcloth.
II. Birdlime.	VI. Whalebone.
III. Dice-box.	VII. Honeymoon.
IV. Milldew.	VIII. Heirloom.
IX. Sandbed.	

Answers to the PRIZE ENIGMA.

I. By Mr. John Fildes, Schoolmaster, in Liverpool.

Near Mersey's stream, Elander, hapless man,
 In plaintive strains his sorrows thus began :
 And must I see Alena's face no more ?
 Then all my hopes of earthly bliss are o'er !
 For tho' compell'd from her I love to part,
 Nought can efface her image from my Heart.
 Still will she be to me for ever dear,
 And thoughts of her will oft excite a tear :
 For her in secret will I sigh till death,
 And her dear name shall share my dying breath.
 May she sweet woman, every blessing know,
 That heav'n itself, on mortals can bestow.
 Form'd to my wish, with every charm to please,
 Soon did she rob my bosom of that ease,
 Which time and absence never can restore,
 For each new day afflicts me more and more.
 Then since on earth I can no comfort find,
 Oh may that pow'r who form'd the tender mind ;
 In kind compassion for my wretched state,
 Take me to where more happy scenes await ;
 Then with Alena may I meet above,
 Where all is perfect harmony and love.

B

There

'There where no fear the raptur'd soul alarms,
 May we be happy in each other's arms;
 'That blifs enjoy deny'd to us below,
 Nor ever feel one pang of grief and woe;
 But of each joy, and of each wish possest,
 Each other blessing, live for ever blest.
 'Thus mourned Elander, poor unhappy swain;
 And wept, and call'd on heav'n to end his pain.

2. *By Mr. Patrick Hall, Denby.*

Ye British fair your *Heart* pray keep, And endless blifs at the last day,
 In virtue's cause be wise, Will be th' important prize.

3. *On Hope. By Mr. John Savage, Coventry.*

Come thou dear comfort of mankind,
 Sweet soother of a troubled mind,
 And bid our sorrows rest;
 'Tis thee kind hope that cheers us through,
 This wilderness of tears and woe;
 Come, sooth each troubl'd *Breast*.

4. *To Mr. Waring, by Mr. Samuel Beafall.*

A *Heart's* what you mean Sir, if I judge aright;
 Your whole feat of knowledge is now brought to light.

5. *By Mr. James Frost, of Morley-Park.*

Adam and Eve, in Paradise we find
 Were righteous made. to evil not inclin'd,
 Till Satan's proud deceitful *Heart* at last
 Inveigh'd Eve, forbidden fruit to taste.

6. *By Mr. Thomas Neild, of Hawarden, North-Wales. Address'd to his Pupils.*

Behold by dear boys, who are under my care,
 Of pride and ambition, I'd have you beware;
 They'll poison your principles, make you a fool,
 No master can teach you, in college or school;
 Their lectures, and time, will be quite thrown away,
 On all who to pride and ambition give way;
 Be faithful, and just, in whatever you do;
 Be sober, religious, and virtuous too;

Let your *Heart* rule your passions, whatever they be,
And all your intentions first thoroughly weigh;
Desire no more than is needful for life;
Keep company with none who encourages strife;
And be not deluded, but learn and be wise,---
Let reason and justice, be ever your prize.

Other ingenious answers were given to the Prize Enigma by the following gentlemen, viz. *Rob. Allwood, Autodidactus, John Bower, Benj. Burn, Tho. Clark, Samuel Eaton, Tho. Fox, John Fletcher, Tho. Garton, Jonathan Hornby, William Salter, jun. Abraham Sapcoat, and John Smith.*

General ANSWERS to the ENIGMAS.

1. By Mr. John Fildes, Liverpool.

How blest the pair, whose youthful Breasts	
With mutual passion burn;	
But wretched is that lover's fate,	
Who meets with nO return.	2.
Yet all that slighted lover's feel,	
The woes which they endure;	
Some have <i>Been</i> known to joke and say,	4.
Cold <i>Pudding</i> soon will cure.	3.
But vain such talk; for time itself,	
Sometimes can ne'er remove,	
The fond <i>Attraction</i> that inclines	11.
A tender <i>Heart</i> to Love.	12. 10.
Arlindo in the bloom of youth,	
By Laro was addrest:	
With every <i>Sign</i> of love sincere,	1.
He vow'd to make her blest.	
The fair one's easy faith he won,	
Then left her to despair.	
And oh! can <i>Fancy</i> paint the woes,	5.
She now is doom'd to bear.	
Grief keener than a <i>Winter's</i> wind,	9.
<i>Sticks</i> to this drooping rose;	7.
No kind <i>Advice</i> , nor <i>Money</i> now,	
Can give her soul repose.	

2. *Belinda's Despair.* By Daniel Sheridan.

Coersive silence rules the sable night,
 Save from the covert of yon ample thorn,
 Where Philomel her tuneful vigils keeps,
 In softly soothing notes almost divine.

Beside this tinkling brook, I'll sit me down,
 Whose purling rills oft lull'd me to repose;
 Upon whose flow'ry banks where erst I lay
 Reclin'd supinely on my Collin's breast,
 Dissolv'd in raptures of endearing love,
 Once more I'll lie——

And in the direful anguish of my soul
 Decant the sardles of my woe-fraught *Heart*; 12.
 Cathetic echo, aid my languid voice,
 Repeat my dirges to the Steller spheres,
 And they'll reverberate the pensive lay

To endless space, where worlds unnumber'd roll;

All *Sign* of contemplation is no more. 1. 2.

The *Brumal* air congeals the limpid stream; 9.

Diverts gay nature of her vernal hue,

Confines *Bees* to *Fan* their *Golden* store, 4. 5. 8.

Where vile ambition's enterprising schemes

Has no *Attraction* for the busy tribe. 11.

Desist wild fancy, bare your mazy flight,
 And those few moments in reflection spend,
 That fate allows thee in this vale of tears;
 O partial fate! shall I and I alone,
 Ne'er boast the pleasure of one gracious smile,
 Till these dim orbs are clos'd in endless night.

My ebbing veins in slow pulsations move; 10.

My *Love*-wreck'd brain grows giddy as I gaze,

My aching heart drops blood from every pore,

And ghastly horror fills my soul,

My conscience raves as *Sick*-ler 'gainst my will 7.

Alas I die—delusive world farewell——

3. *The 14th Chapter of the book of Judges.*, by John Ellicott, of Malton.

When Sampson's will led him astray,

He slew a lion in the way,

Without a *Weapon* in his hand; 7 E.

A *Sign* it was by God's command. 1 E.

In Timmath he then found a *Wife*,

The *Snare* which caus'd his future strife;

10 alluding to love.
 2nd Ch.

For she was of that ill-Tongu'd race,	2 R.
Who bring mankind into disgrace.	
When he return'd to take his bride,	
To view the carcase, turn'd aside;	
A swarm of Bees, he did behold,	4 E.
But to no one the secret told;	
He of the comb and honey took,	
And then the <i>Heath</i> or plain forsook.	6 R.
Next for his foes he made a feast,	
Of fowls and <i>Puddings</i> of some beast;	3 E.
Instead of <i>Dice-box</i> , <i>Fan</i> , or fiddle,	3 Ch. 5 E.
He did put forth a certain riddle;	
Which <i>Lee</i> , nor <i>Sapcoat</i> could expound,	3 R. 1 Ch.
Nor any <i>Fox</i> , on <i>Mansfield Ground</i> .	4 and 1 R. 9 Ch.
His bride in <i>Sackcloth</i> sore did weep,	5 Ch.
And oft her <i>Breast</i> and <i>Stays</i> did beat, alluding to a heart.	6 Ch.
Thinking like rush lights burnt they be;	
Their <i>Looms</i> destroy'd, and family.	8 Ch.
With <i>Icy</i> looks, and <i>Mildew'd</i> eyes,	9 E. 4 Ch.
She caus'd him to disclose the prize,	
Which she impatient, <i>Truly</i> told,	6 Ch.
The dull <i>Tyros</i> , and sav'd their <i>Gold</i> .	11 and 8 E.

4. *The Enigmas, and 4th Query, by Autodidactus.*

For <i>Wealth</i> alone, we ne'er should wed,	8. money
Or feather-Fanned beauty;	5.
By emulating hope, if led,	
By learning <i>Taught</i> our duty.	6.
The <i>Staff</i> of bread should solely prize,	7.
Nor yet slaves to <i>Dainties</i> be;	3. 4. pig's-pudding and bees.
'Tis here our <i>Friendly</i> something lies,	10.
Our center of gravity.	11.
To know vain self, your bible read,	
Therewith compare our actions;	
And not on <i>Signs</i> and <i>shadOws</i> feed,	1. 2.
Which only breed distractions.	

Ingenious answers were also given by Messrs. R. Allwood, J. Bowyer, Benjamin Burn, T. Clark, S. Eaton, J. Fletcher, T. Fox, J. Griffith, Jonathan Hornby, P. Hall, T. Neild, and W. Salter, junior; Mr. John Cartledge answered the 6th enigma.

Answers to the REBUSES and CHARADES.

1. *To the Rebusses, by T. Fox, of Norton.*

T. Fox presents his compliments
To all diarian friends;
To *Esther Lee* so gay and free,
His humble service sends.

Livan, good faith, nor *Mansfield*, *Heath*,
Shall e'er employ his *Tongue*;
But truth and love, shall always prove
The subject of his song.

The Charades answered by T. Fox.

Sapcoat! behold the flut'ring Bird
Entangl'd with the *Lime*;
An emblem of yond coxcomb who
On *Dicebox* spends his time:
May not he on a *Sandbed* lie,
With *Mildew* cover'd o'er;
Or in a goal in *Sackcloth* clad,
His fortune sad, explore:

An *Hierloom* of his gloomy cell,
Let him the wax torch want;
Without a *Coat*, on boiled *Peas*, 1. 2. an.
Pray keep him hard and scant;
Or with a whip of whalebone flout,
Correct his follies past;
Or else transport him to the *Poles*, 1. P.
To keep a half year's fast.

2. *By Mr. John Fildes, Liverpool.*

At *Heath* or in *Mansfield* how glad I should be,
In wedlock to join with the fam'd *Esther Lee*:
Whose *Tongue* to talk scandal is never inclin'd,
And whose lovely waist is with *Whalebone* confin'd.
Good heav'n! with what bliss would the *Honeymoon* pass,
In th' arms of so sweet, and so charming a lass!
And if 'tis my lot with this maid to be blest,
No *Hierloom* nor *Sackcloth* shall trouble my breast.
No *Livan* with *Birdlime* I'll ever trepan,
For freedom as dear is, to birds as to man.
As seamen do *Sandbeds*, the *Dicebox* I'll shun,
Which more than the *Mildew* perhaps has undone.
Both *Sapcoat* and *Fox* shall my nuptials attend,
And likewise T. Neild my poetical friend.

3. *By Autodidactus.*

If *Esther Lee* of Coventry
Will please to visit *Mansfield* fair,
And Mr. Fox, with his *Dicebox*,
To them *Sapcoat* and I'll repair,
With half-a-score (from *Heath*) or more,
Sprightly lads and blooming lasses,
Dress'd in new *Coats*, and London boots,
The girls, in balloons and fashies.

3 R.
1 R.
4 R. 3 Ch.
1 Ch.
6 R.
1 An.

Soon

Soon tir'd of dice, we'll in a trice,	
To some drefs'd maypole then repair ;	
Each chuse a bride, and sail with th' <i>Tide</i> .	3. An.
In mirth and music, drown fell care.	
Yet in our glee, let's harmless be,	
And keep within due bounds the <i>Tongue</i> ;	2. R.
No dull <i>Heirloom</i> send crying home,	8. Ch.
Nor him, of's <i>Whip</i> , or <i>Birdlime</i> , wrong :	6. 2. Ch.
For soon to <i>Dust</i> , return we must,	9. Ch.
And like <i>Peas</i> bloom, go to decay ;	2. An.
Some noxious <i>Deav</i> may blast our hue,	4. Ch.
And unto <i>Sackcloth</i> pave the way.	5. Ch.

IV. *The Dream*, by Mr. W. Salter, Jun. *Bilston*.

One eve as I saunter'd along the green mead,
 Where th' ewes and their lambkins delight for to feed,
 Being weary, for rest on a *Sand-bank* reclin'd,
 I lay, when a dream enter'd into my mind ;
 Me thought the shrill *Tongues* of the warbling choir,
 With sonorous echoes, the grove did inspire,
 And th' bells in sweet melody rung from the spire ;
 The lads and the lasses, with rapturous joy,
 Inform'd me soon after a wedding was nigh ;
 The fam'd *Esther Lee*, the delight of the place,
 Had agreed to surrender to *Fox's* embrace ;
 To *Mansfeld* were gone, strait the nuptials to join,
 Where *Sapcoat* and I were invited to dine :
 The table with dainties was plenteously stor'd,
 And ale, wine, and brandy, were set on the board ;
 A health to the bride and the bridegroom went round,
 While Hymen and Bacchus with joy the feast crown'd :
 No mourning in *Sackcloth* was seen at the feast,
 Nor *Mildew*, nor *Birdlime*, disgrac'd the fair guest ;
 But th' bloom of fair Hebe was in their faces,
 And tight *Whalebone* slays exalted their graces.
 No *Dice-box* admitted, but innocent sport,
 Which far did excel the delights of a court ;
 Nor *Hierlooms* of envious malice or spleen,
 To annoy the refulgent *Honey-moon's* reign ;
 But extasy all wrapt in joys most refin'd,
 Exalting with pleasure each loyal guest's mind ;
 But oh ! what a damp, when a noise and confusion
 Awoke me, and all was merely delusion.

Answers were also given by Messrs. J. Elliott, J. Griffith, Jonathan Hornby, D. Sheridan, James Stevenson, John Smith, and Thomas Smith.

I. PARADOX, answered by Mr. Jonathan Hornby.

The proposer must have been near the pole where the sun continues for a great time above the horizon, without ever setting.

Answers were also given by Mr. J. Fildes, J. Griffith, and Mr. D. Sheridan.

II. PARADOX, answered by Mr. D. Sheridan.

IV sum and V—I or $5-1=4$, W. W. D.

Nearly as above, the Answer was given by Mr. Fildes ; otherwise by Mr. J. Hornby, and Mr. Griffith.

Any two quantities with different signs, that is the one plus, the other minus, by the rules of Algebra their difference is the sum.

QUERIES ANSWERED.

I. By Mr. John Elliott, of Malton.

The Full Moon in May 27, 1798, will produce an Eclipse, but not strictly total. See Ferguson's Astronomy, p. 219 ; a full explanation.

Mr. J. Griffith, and Mr. T. Whiting, also answered it.

II. By Mr T. Cock, of Greenwich, Kent.

The air in dales is often dense enough to bear up the vapours and exhalations at a considerable height, but always at the height of the tops of some hills, on which the specific gravity of the air is not always equal to that of those gross vapours which exhale from low lands ; and 'tis known that such vapours can be suspended at no greater height than that where the air is of the same specific gravity.

Answers were also given by Messrs. Elliott, Hornby, Griffith, and Whiting.

III. By Mr. T. Whiting, Lambeth.

I am inclined to think that the lover is the soonest reconciled, as it will wear off by company and fresh connections.

The same by Mr. Jonathan Hornby.

As love is generally allowed to be the strongest of all passions ; so the miser would certainly be reconciled sooner.

Answers were given by Messrs. J. Elliott, T. Fox, and J. Griffith.

IV. By Mr. John Cartledge, of Chesterfield.

Although it is the gift of God for man to have a true knowledge of himself, yet it is not attained without the use of means ;
and

and in the proper use of those means that God hath appointed, it is attainable. The careful reading of the Holy Scriptures, will bring to our view the state that man is in by nature, and the state that he is in by grace. And I believe this knowledge to be quite essential, both to man's present and future happiness.

Answers were given by Messrs. Autodidactus, Elliott, Griffith, Hornby, and Whiting.

NEW ENIGMAS.

I. ENIGMA (47) by Mr William Salter, Junior.

When blooming spring renews her pleasant reign,
And cloaths with verdure gay each fertile plain ;
Harmonious songsters warble forth their joy,
Which hills re-echo with sweet extasy.
With what delight the happy swains behold,
Returning spring its choicest gifts unfold ;
The amb'ent fields ambros'al herbage grace,
And lavish nature shews her lovely face.
'Tis then that I a little pleasure find,
And live in peace, unenvy'd by mankind ;
But oh ! how short and transcient is the time,
I live secure, for ere I've reach'd my prime ;
By cruel, unrelenting hands I'm sought,
And soon my life is to a per'd brought ;
With weapons dire they me around beset,
And lay me prostrate at their tyrant feet ;
Thus fall'n, I'm hurry'd to fresh scenes of woe,
And tortures dreadful, doom'd to undergo ;
Into a cavern drear, with speed I'm sent,
And back am tost ere yet their rage is spent.
Rapacious iron tears my vitals thro',
And mortal wounds all o'er my body strew ;
Then cast me in where boiling torrents range,
And there, O mortals ! I receive a change :
Regenerated I all fears dispel,
And find a refuge in an hermit's cell ;
Where, unmolested, I in peace remain,
'Till act'al service calls me forth again ;
Then I'm the darling of the human race,
And in their bosoms find an hiding place.
To king and country, I'm a trusty friend,
My service faithful to the crown I rend.
Thousands on me depend for firm support,
And thousands more my kind assistance court ;

E'en

E'en those that mē so cruel us'd of late,
 Without my aid would curse their bitter fate ;
 But I relenting, former faults forgive,
 And, deigning succour, bid the traitors live.

II. ENIGMA (48) *by Mr. William Swift, of Stow.*

Kind gents, my parentage I will reveal,
 And nought from you I wish for to conceal ;
 My parents they were slaves unto mankind,
 As, by the sequel, you'll hereafter find.
 But first my shape—I'm round when belly's full,
 When I am empty—oblong, flat, and dull ;
 I cannot walk (for sloth is all my pride)
 So on my parents' back I sometimes ride.
 The Mansfield Miller knoweth me full well,
 And many stories 'bout me he will tell ;
 Tells you I am neither flesh, blood, nor bone,
 I am compos'd of nought but skin alone.
 A friend in want unto both rich and poor,
 All do carefs me—what can I say more.

III. ENIGMA (49) *by Autodidactus.*

In days of yore, full great was my renown,
 Honour'd by old and young of each degree ;
 I was clad in a plain white morning gown,
 And far and near, all own'd my deity.

Winter and summer, founded forth my praise
 Thro' life, and at the gates of death rever'd ;
 All nature's voice agreed my fame to raise,
 Because men's drooping spirits I oft chear'd.

The world without me is a mere desert,
 A miserable solitude indeed ;
 Life wretched is, where I don't polish th' heart,
 And, like the sun, the plants of virtue feed.

I lessen griefs—true pleasures do increase,
 And solid joys reflect from eye to eye ;
 Tempers and manners I refine and ease,
 And comfort those who on their death-beds lie.

The young I introduce to real life,
 And guide them into prudent courses too ;
 I kindle in the mind a noble strife,
 And raise the joys of all the honest few.

A gen'rous emulation I do raise,
 The knowledge of the mind for to improve ;
 I crown the mem'ry of the just with bays,
 Compleat the bliss of sweet conjugal love.

IV. ENIGMA (50) *by Mr. Thomas Nield, Master of a Boarding School, Hawarden, North Wales.*

Sing, gentle Muse, O sing my mournful tale,
In moving strains, nor leave no part untold ;
A pitying tear it from each eye will steal,
The matrons, prudes, and e'en the victors bold.

Behold with languid eyes, ye tender fair,
My brothers, sisters, and my dearest friends ;
All scatter'd here and there, with haggard hair,
And no kind mortal them assistance lends.

Yet without me no mortals can be made,
Nor cou'd you see the charms of rural sport ;
I yield assistance to your shy comrade,
And am conspicuous in each princely court.

But still unpitied, I am forced to lie
In woods, and groves, and lofty mountains too ;
Hard hearted wretches ! not one pitying eye,
Relieves my wants, tho' such a friend to you.

What shall I say, or whither shall I go,
To hide my face from every mortal's sight ;
I'll live in sorrow in the world below,
Nor even to their pleasures yield delight.

Ah ! fortune why wilt thou neglect me so,
Or see me thus in silent sorrow moan,
For shou'd I quit thee, whither wou'dst thou go,
What wou'dst thou say to make thyself be known.

V. ENIGMA (51) *by Mr. Daniel Sheridan.*

Come heav'nly Muse, in dulcet numbers greet,
My dear lov'd theme, in strains superbly sweet ;
Assist ye florid feats of attic rhyme,
Ye lonely coverts of the tuneful nine.

From Carmels flow'ry verge, to Pindus rove ;
From great Olympus to Dodona's grove ;
From fam'd Helicon's airy summit stray,
To gay Parnassus, and the milky-way ;
Where gorg'ous lustre blend in lucid floods,
To light the starry palace of the Gods ;
Descend and taste Castalia's limpid spring,
That makes each guest melodiously to sing.
Fraught with these scenes, my voice I'll humbly raise, }
Inoper'd by Sol's clear translucent blaze, }
Whilst Flora's train, is note-book to my lays.

Ye female bards, that mentally possess,
Minerva's lore, with Sappho's flowing verse,

Gay Hebe's bloom, with Paphia's lovely mien,
Beyond the bounds of weak romance to feign,
Attend whilst I pourtray a rival guest,
That ne'er once tasted of Diaria's feast.

Know then, ye fair, in Eden's blissful grove,
Where warbling birds induce the heart to love,
Amid the buxom, gay, vivacious shades,
Sweet purling rills, and green enamel'd meads.
With Adam erst I stray'd, e'er Eve he knew,
On vernal lawns replete with pearly dew ;
But when that fair angelic form he'd seen,
In solar splendour, and seraphic mien,
He thank'd that gracious great omnific God,
That fram'd this charmer for his deſt abode ;
With mandate ſtern, expell'd me from his home,
O ! never, never there again to come.
In plaintive dirges, and condoling ſtrains,
I bid adieu to thoſe prolific plains ;
Long time I wander'd, till Diana fair,
With chafe embrace, call'd me her only dear ;
Auspicious hour ! for ever ſacred be,
In pious annals to poſterity.

Prophetic Paul extols my ample worth,
From climes antartic to the frozen north.

Fair maids, whene'er in altitude of bloom,
Deſt my preſence as the torrid ſun ;
Tho' moſtly roſeate youth compoſe my train,
And truly charming is my tranquil reign ;
In frantic joy ſhe quickly bounds from me,
To try the charms of darling novelty ;
E'er Luna fills her pale cuſpated face,
And deck'd her o'er with each lucific grace ;
E'er ſhe (by varying excavation) proves
The hate of mankind, ſhe ſo dearly loves ;
The weeping fair one does my abſence mourn,
Thoſe pleaſing ſcenes, ah ! never to return.

When great Jehovah, from his lucent throne,
To mortals ſent his amiable ſon ;
The circumambient ſystems hail'd his flight,
With rare effulgence of ecſtatic light.
All nature hail'd the vivifying ray,
That burſt the confines of eternal day ;
The thunder ſhrinks, the forky light'nings ceaſe,
While angels laud the harbinger of peace.

Thro' all viciffitudes of earthly care,
In torrid, temp'rate, frigid, denſe, or rare,

I was

I was his comfort in this vale of woe,
As pure and spotless as descending snow.
I still attend the splendid choirs on high,
Dissolv'd in sweet celestial harmony.

VI. ENIGMA (52) PRIZE ENIGMA. *By Mr. John Fildes, School-master, in Liverpool.*

When heav'n-born peace forsakes a guilty land,
And front to front contending armies stand;
I then appear among the warlike train,
And fearless march across th' embattled plain.
But soon I quit these scenes of martial strife,
And deck'd with plumes I lead a country life,
Near cooling streams, and in the rural shade,
I may be found in sable garb array'd.
When spring returns and clothes the trees with green,
Among the leaves I always may be seen;
Both plants and flow'rs, that in the gardens grow,
Do oft to me their beauteous order owe.
In artful schemes my willing aid I lend,
And learned men I very much befriend.
Great Newton many properties did find,
Respecting me, and taught them to mankind.
The architect does much on me rely;
And with the chemist I may surely vie;
For sometimes I without the smallest heat,
Do diff'rent kinds of metals separate.
The fam'd musician has recourse to me,
Whene'er he writes a merry catch or glee.
The seaman too can tell what deeds I've done,
In northern seas from him I swiftly run.
From clime to clime, I wander to and fro,
I cross the ocean, round the world I go;
And ev'ry land and kingdom do surround,
That Cook himself, or Anson ever found.
I near the table constantly attend,
And laundry nymphs all own me for their friend.
A well known guide I am to thoughtless youth,
And serve to lead them in the paths of truth.
With me the swain intrusts his hapless fate,
When doom'd to bear some cruel fair one's hate;
But vain my pow'r to give his soul relief,
For oft I more and more increase his grief.
Some prying wit amongst the critic throng,
Perhaps may say in some things I am wrong;
But to convince him, place me in his sight,
When straight he'll own, that I am always RIGHT.

NEW REBUSES, CHARADES, &c.

I. REBUS (29) *By Autodidactus.*

To one of the cardinal points be pleas'd to add,
 What Hagar, in her dire distress, once saw and was glad;
 And an ancient town, of some note, you'll see rightly nam'
 Which is, for its most beautiful cathedral, much fam'd.

II. REBUS (30) *By Mr. William Swift, of Stow.*

Four letters will explain my fair one's name,
 Backward, or forward read, 'tis all the same;
 Verse, or reverse, you need not mind which way,
 She's th' flower of England, and queen of th' May.

III. REBUS (31) *By Mr. John Fildes.*

To two fifths of a cardinal point, if you join
 Just two sixths of a thing often filled with wine;
 And two fourths of a man who can turn white to black,
 They will shew you who carry'd all Rome on his back.

IV. REBUS (31) *By Mr. Daniel Sheridan.*

First take a glorious queen divinely fair,
 Majestic empress of the heav'nly sphere.
 A nymph residing on fair Ida's node,
 Endu'd with knowledge by the Delphian God.
 A fount beneath Helicon's flow'ry verge,
 Pegasus foot, bade flow the limpid surge;
 A comely youth, chang'd to a Daffodil,
 For loving's self reflected in a rill.
 A nymph consum'd by Jupiter's embrace,
 For wishing that extravagant caress.
 A priest that erst in prophecy was skill'd,
 And rode his arrow through the stellar field.
 A river plac'd near the infernal coast,
 By tasting which all recollection's lost.
 A famous pilot that embark'd from Greece,
 Escorting Jason for the Golden Fleece.
 A muse presiding o'er the dulcet notes
 Of heavenly music, charmer of the gods.
 A martial hero great, that first began
 The ample glories of majestic Rome.
 Th' initials, sirs, a youth to you imparts,
 Profoundly skill'd in the sublimer arts.

I. CHARADE (29) *By Mr. John Smith, Schoolmaster.*

My first for industry fam'd,
My second's well known to the fair,
For keeping apparel secure,
Preserving it from rent or tear.

My whole amongst musical friends,
Performed with judgment and care,
Enlivens and raptures the soul,
Delightfully proves to the ear.

II. CHARADE (30) *By Mr. James Frost, Morley Park.*

Upon your back, my first you may behold,
Look at your door, my next I've plainly told ;
My whole at mercers' shops you'll quickly find,
A guide and statute to content your mind.

III. CHARADE (31) *By Mr. Thomas Smith.*

To sit o'er my first, what numbers combine,
My next is a servant at Bacchus's shrine ;
My whole with true courage is known t' abound,
Above other beings on earth to be found.

IV. CHARADE (32) *By Mr. William Salter, jun.*

My first to welcome joyful nymphs and swains,
Cull flow'ry chaplets from the neighbouring plains ;
My next behold does Herrald's page adorn,
By noble lords on their escutcheons borne ;
My whole in many British towns you'll find,
A station of the most exalted kind.

V. CHARADE (33) *By Mr. William Smith, of Stow.*

My first bears great burthens to France and to Spain,
My next what most sportsmen do chiefly at aim ;
My whole's an instructor on th' ocean wide,
To bold jolly tars who on ship-board do ride.

VI. CHARADE (34) *By Mr. John Fildes, Schoolmaster.*

My first is met with near each river's side,
And near cool brooks that through the vallies glide ;
When warbling songsters fly from spray to spray,
My second always leads them on their way :
My whole to him that is with want oppress'd,
Without a doubt would be a welcome guest.

VII. CHARADE (35) *By Mr. Daniel Sheridan.*

My first in vernal majesty surveys,
The flow'ry suburbs of the vocal grove ;
My next old Gripus' favourite displays,
That regal Phœnix from which sprung his love :
My whole implies that ample drear domain,
Where charming Polly wish'd her darling swain.

I. ANAGRAM (8) *By Mr. John Smith.*

Transpose aright, a garment worn
In days of yore, by th' British fair;
What's then in reputation held,
By Bacchus' sons will plain appear.

Then if you will the trouble take,
Of this friend a transposing make,
Tho' highly priz'd 'tis plain and clear,
What's t' them a thousand times
more dear.

PARADOXICAL PROBLEM (6) *By Mr. John Smith.*

Assist me kind artists in planting a bower,
The trees must in number be just twenty-four,
T' form it compleat fifteen rows will be wanted,
Four trees in each row—my fuit will be granted.

NEW QUERIES.

I. QUERY (24) *By Mr. T. White, of Barzvel.*

Ye Bards who in the British Diary shine,
Tell me by whom, and also when the time,
That English Ladies first were taught to ride,
On saddles which we term by name of Side.

II. QUERY (25) *By Mr. John Smith, Schoolmaster.*

In the 11 chap. of Hebrews we read of the fruits,
Produced by faith in the hearts of the ancient patriarchs,
And prophets, who, according to the 33 verse of that chap.
Subdued kingdoms, wrought righteousness, obtained
Promises, &c. to verse the 39; these all having obtained a
Good report, through faith, received not the promise; a proper
Explanation is requested?

III. QUERY (26) *By Mr. John Cartlidge, of Chesterfield.*

As GOD is the first cause, the ultimate, the end of
All things; how shall we be employed to bring the
Most glory to him?

IV. QUERY (27) *By a false Swearer.*

What is the consequence of a false oath?

ANSWERS to the MATHEMATICAL QUESTIONS.

I. QUESTION (46) Answered by Mr. John Salter, Bilston.

Divide the 2 equation by $z^2 + zy + y^2$ and you will have $-y = 1$, or $z = y + 1$, this substituted for z in the 1st equa. it becomes $2y^2 - 3y = 2$; whence by compleating the square and extracting the root, you will have $y = 2$ years, and $z = 3$ months, the time she intends to live single longer.

The same by Mr. A. Buchanan, jun.

It is well known (see Bonnycastle's Arith. prep. 16, page 205) that $\frac{z^3 - y^3}{z - y} = z^2 + zy + y^2 = z^3 - y^3$ per question, hence (dividing both sides by $z^3 - y^3$, &c.) $z - y = 1$, or $z = 1 + y$ which being put instead of z in the 1st equation, we have (after reduction, &c.) $y^2 - \frac{3}{2}y = 1$; hence $y = 2$, and $z = 3$; hence it appears the fair one intends to live single 2 years and 3 months longer.

Solutions were given by Messrs. S. Beafall, T. Whiting, Wm. Salter, jun. R. Wilkinson, S. Banyard, W. Hulland, J. Ashton, D. Sheridan, J. Elliot, T. Fox, J. Griffith, J. Hornby, and P. Hall.

II. QUESTION (47) answered by Mr. James Ashton, Harrington, near Liverpool.

Given $xy = 460 = a$, and $y^x = 320 = b$. From the first equation $y \times \log. x = \log. a$, and from the second $x \times \log. y = \log. b$; but by the first $x = \frac{a}{y}$, which substituted in the second, gives $\frac{a}{y} \times \log. y = \log. b$; whence $(\log. y)^2 = \frac{\log. a}{\log. b}$; then $\log. y = \sqrt{\frac{\log. a}{\log. b}} = .6646133$, the na-

tural number of which is $4.6197 = y$ nearly; then $x = \frac{\log. b}{\log. y} = 3.77$ nearly.

Other ingenious answers were given by Messrs. T. Whiting, J. Salter, R. Wilkinson, S. Banyard, D. Sheridan, J. Elliot, J. Griffith, J. Hornby, and P. Hall.

III. QUESTION (48) answered by Mr. Wm. Hulland, of Newborough.

Put $x =$ one leg, $y =$ sum of the two legs, and $z =$ half the sum of the three sides of the right angled Δ $2a = 4050$, $b = 30$; then $y - z =$ the other leg, and $2z - y =$ the hypotenuse.

Also per quest. $\left\{ \begin{array}{l} 1 \quad 3yx^2 - 3y^2x - 12yz^2 + 6y^2z + 8z^3 = 2a. \\ 2 \quad 2x^2 - 2xy = 4z^2 - 4zy. \\ 3 \quad xy - x^2 = 2b. \end{array} \right.$

$3 \times 2 \quad 4 \quad 2xy - 2x^2 = 4b.$

$2 + 4 \quad 5 \quad 4zy - 4z^2 = 4b$, and $zy - z^2 = b$, also $y = z + \frac{b}{z}$.

$5 \times 2 \approx 6 \quad 8z^2y - 8z^3 = 8bz.$

$1 + 6 \quad 7 \quad 3yx^2 - 3y^2x - 4yz^2 + 6y^2z = 2a + 8bz.$

$7 \times 2 \quad 8 \quad 6yx^2 - 6y^2x - 8yz^2 + 12y^2z = 4a + 16bz.$

$2 \times 3y \quad 9 \quad 6yx^2 - 6y^2x = 12z^2y - 12y^2z.$

$8 - 9 \quad 10 \quad 4yz^2 = 4a + 16bz$, the value of y found in 5 step, and
sublt. 10 11 $4bz + 4z^3 = 4a + 16bz$ and $z^3 - 3bz = a.$

Assume $\left\{ \begin{array}{l} 12 \quad v + w = z \\ 13 \quad vw = b \end{array} \right\}$ put these values of z and b

in the 11 14 $v^3 + w^3 = a.$

14 $\odot^2 \quad 15 \quad v^6 + 2v^3w^3 + w^6 = a^2$

13 $\odot^3 \times 4 \quad 16 \quad 4v^3w^3 = 4b^3$

15 - 16 17 $v^6 - 2v^3w^3 + w^6 = a^2 - 4b^3$, and $v^3 - w^3 = \sqrt{a^3 - 4b^3} = C$

14 + 17 18 $2v^3 = a + C$, and $v = \frac{a+C}{2}^{\frac{1}{3}} = d$, put this value v

in the 13 19 $w = \frac{b}{d}$

18 + 19 20 $v + w = d + \frac{b}{d} = z = 15$, and by 5 step $y = 17$

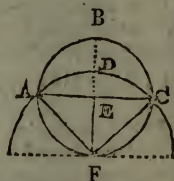
3 solved 21 $x - \frac{y}{2} = \sqrt{\frac{y^2}{4} - 2b}$, and $x = \frac{y}{2} + \sqrt{\frac{y^2}{4} - 2b} = \left\{ \begin{array}{l} 12 \\ \text{or } 5 \end{array} \right.$

hence the sides of the triangle are 5, 12, and 13, W. W. R.

Ingenious answers were given by Messrs. S. Beasall, T. Whiting, Wm. Salter, R. Wilkinson, S. Banyard, J. Ashton, D. Sheridan, J. Elliot, T. Fox, J. Griffith, and P. Hall.

IV. QUESTION (49) answered by Mr. Robert Wilkinson, North Shields.

Put x = diameter AC; then $x^2 \times .3927$ = area semicircle ABC. The triangle ACF being isocles and in a semicircle, the $\angle F = 90^\circ$, and the $\angle A$ and C each $= 45^\circ$. Put Rad. = 1, Sine $45^\circ = \sqrt{\frac{1}{2}}$, then $1 : x :: \sqrt{\frac{1}{2}} : x\sqrt{\frac{1}{2}} = AF$; $\therefore 2x\sqrt{\frac{1}{2}} \times .19635 = 2x^2 \times .19635$ = area of the quadrant ADCFA, which is equal to the semicircle ABCA



from

from the above; therefore the ΔACF must be equal the lune ABCDA. Now $x\sqrt{\frac{1}{2}} \times x\sqrt{\frac{1}{2}} = \frac{x^2}{2} = \text{area of } ACF = \text{area of the lune} = 43560 \text{ feet per } 2. x^2 = 174240 \therefore x = 417.4206 = AC \therefore x\sqrt{\frac{1}{2}} = 295.1609 = AF$; therefore the semidiameters of the two circles are in feet $= AF = 295.1609$, and $AE = 208.7103$ respectively. W. W. R.

Other ingenious solutions were given by Messrs. T. Whiting, Wm. Salter, A. Buchanan, J. Salter, S. Banyard, W. Hulland, J. Ashton, D. Sheridan, J. Elliot, J. Griffith, J. Hornby, and P. Hall.

V. QUESTION (50) answered by Mr. John Griffith.

First, $\frac{4840 \div 8 \times 5 \times .7854}{2} = 12.4121 \times 8 = 99.297 = AC$, and $12.4121 \times 5 = 62.061 = BE$, the diameters acquired, which call t , and c ; the true method of finding the periphery of an ellipsis is by summing up a series (Hutton's Menfur. p. 233 gives this rule) $\frac{p}{2} \times \frac{t+c}{2} \sqrt{\frac{12+c^2}{12}}$

$=$ the periphery, and in this case gives 255.2775124, which at 18s. per yard amounts to 229l. 15s.

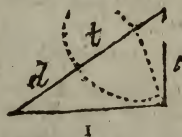
Again, let $\frac{1}{3} = a$, and the ordinate $= x = \frac{1}{2}$ the side of the Δ ; then will the \perp height thereof be ax , and the other part of the diameter $= c - ax$, then by the properties of the ellipse, which in this case is the same as a circle, $c : t :: cax - a^2 x^2 : x$, by multiplying and squaring both sides, $c^2 x^2 = t^2 cax - t^2 a^2 x^2$, by transposition and division, $x = \frac{t^2 ca}{c^2 + t^2 a^2} = 31.7028 \times 2 = 63.4056$, the side of the triangle required; NB. the \perp must be in conj. di.

Messrs. T. Whiting, W. Salter, J. Salter, R. Wilkinson, W. Hulland, J. Ashton, D. Sheridan, J. Elliot, T. Fox, J. Hornby, and P. Hall, answered also.

VI. QUESTION (51) answered by Mr. Jonathan Hornby.

Let $t = \tan.$ of the required arc, $d =$ given diff. then $(r^2 + t^2 = \sec. \text{sq.}) 1 + t^2 = d^2 + 2dt + t^2$, that is $d^2 + 2dt = 1$, and $t = \frac{1-d^2}{2d} = .75 = \tan. 36^\circ.52'.12''$;

hence $\frac{1-d^2}{2d}$ is a general theo. for the tangent.



Solutions were also given by Messrs. W. Salter, J. Salter, R. Wilkinson, D. Sheridan, J. Elliot, J. Griffith, and P. Hall the Proposer.

VII. QUESTION (52) answered by Mr. John Salter.

There is given, per question, in a right \angle^o spherical Δ the hypotenuse = $22^o. 50'$ the sun's declination, and the base (= azimuth) double the perpendicular (= altitude) to find the \angle at the base, the which to obtain, Put x = the co-sine of the altitude, then will $2x^2 - 1$ = the co-sine of the azimuth, and per spherics $2x^2 - 1 \times x$ = co-sine, $22^o. 33'$ from which equation x will be found = co-sine of $10^o. 16'$, then as sine $22^o. 50'$: rad. :: sine $10^o. 16'$: $27^o. 20'$ the latitude required.

The same by Mr. John Griffith, Agent to Whitehead and Co. Wheelock Salt-Works.

This question may be answered by an algebra process; but, and will, produce complex equations: I, therefore, chose the method of trial and error, and shall call the sine of the lat. S, its co-sine C, the tan. of the declination $22^o. 50'$ t, and its sine f, and suppose the lat 30^o . the sun's alt. (by sphe.) is found by the following proportion R : S :: f : sine $11^o. 11'$. the sun's altit. and as R : C :: t : tan. $20^o. 2'$. the azimuth; the error $2^o. 20'$. Again, suppose the lat. 25^o . then R : S :: f : sine of the sun's alt. $9^o. 26'$. and R : S :: t : tan. $20^o. 53'$. the az. from which take $18^o. 52'$. remains $2^o. 1'$. error; then $2^o. \times 5 \div 2^o. 20' = 2^o. 30'$. + 25 gives $27^o. 30'$. for the lat. required; and by repeating the operation, the azimuth is found to be $20^o. 30'$. and the \odot 's altitude $10^o. 15'$. proves it to be right.

Answers were also given by Messrs. T. Whiting, R. Wilkinson, J. Ashton, J. Elliot, and others.

VIII. QUESTION (53) answered by Mr. A. Buchanan.

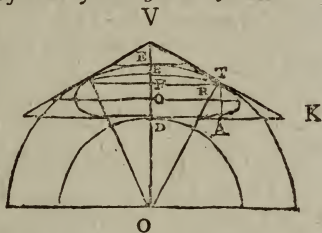
All the chances on ten dice are $6^{10} = 60466176$; and (by p. 55, Simpson's Laws of Chance) the chances for throwing 35. 36. 37. or 38 points, are respectively 4395456, 4325310, 4121260, and 3801535, the sum of these is 16643561, \therefore the probability of throwing 35, 36, 37, or 38 points precisely at one trial is $\frac{16643561}{60466176}$ and consequently the probability of not throwing them precisely is $\frac{43822615}{60466176}$ hence (by prob. 5, p. 12, of the same laws of chance, or prob. iv. p. 7, Em. Mis.) the probability of not throwing the same points once in three trials is $\frac{3.16643561^2 \cdot 43822615}{60466176^3}$ and consequently the odds as $\frac{3.16643561}{43822615}$.

$43822615 : 60466176^3 - 3.16643561^2 : 43822615$, or as $3642 : 18468$ nearly, i.e. as $1 : 5$ nearly.

Answers were also given by Messrs. Whiting, Griffith, and others.

IX. QUESTION (54) answered by Mr. James Ashton.

The solution of this question depends, principally, on inscribing the greatest rectangle ADFT in the curve ET or in the curve BT; for the line VTK being a tangent to both curves the greatest rectangle will be the same with respect to each curve; and it is known that the rectangle will be



greatest possible, when the subtangent AK is equal to the base AD of the rectangle; and when $DF = AT = FV$.

Put $a = OE = OT$, $b = OD$, and $x = DF = AT = FV$
 $\therefore b + x = OF$, $b + 2x = OV$; and $\frac{a^2}{b+x} = OV$; whence

$\frac{a^2}{b+x} = b + 2x$; then will $x^2 + 30x = 250$; and $x =$

6.7944947 . Put $DF = d$ and $c = DV = 13.5889894$; and $x = DO = OB$, the semi-conjugate, then $c - x = ov$, and $d - x = OF$; but, by a property of the ellipsis, $OF \times ov = OR^2$,

then $d - x \times c - x = x^2$; then $x = \frac{cd}{c+d} = 4.5296631$.

Now OF and ov being given, we have $\sqrt{OF \times ov} = 15.580118$ = the semi-transverse, and the two axis are 31.160236 and 9.0593262 respectively.

X. QUESTION (55) answered by Mr. Daniel Sheridan.

Put $.814637 = a$, $.548776 = b$, x & y H

= sine of A and B's courses respectively

($R = 1$) then $\sqrt{1-x^2} = AG = \text{co-}$

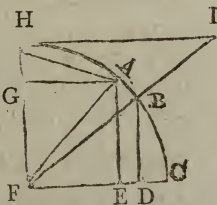
sine of A's course, and $\sqrt{1-y^2} = \text{co-}$

sine of B's course, and as $y : \sqrt{1-y^2} ::$

$1 : \frac{y}{\sqrt{1-y^2}} = HI = \text{co-tan of B's}$

course, which squared and \times by x gives

$\frac{x - xy^2}{y} = a$ (per quest.) Again $1 - x = GH = v$. sine of



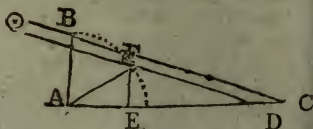
$\frac{x - xy^2}{y} = a$ (per quest.) Again $1 - x = GH = v$. sine of

A's course, which squared, and added to the square of co-sine of A's course, gives the square of AH, which \times by y , gives $2y - 2xy = b$, and $y = \frac{b}{2-2a}$ which squared and substituted in the 1 equa. becomes $4x^3 - 8x^2 + 4x - b^2x = ab^2$, hence (by converging series) $x = .6427876 = 40^\circ$. and $y = 5735764 = 35^\circ$. the courses required. Also as the diff. of the co-lines of A & B's course: $12.45 :: 1 : 178.885 =$ miles failed. W.W.R.

Ingenious answers were given by Messrs. T. Whiting, J. Salter, J. Griffiths, P. Hall, and others.

XI. QUESTION (56) answered by Mr. T. Whiting.

Let AB be the cane in the \perp position AF its position in its inclined state, and let $\odot C$, & $\odot D$ be rays coming from the supreme point of the sun; then $AC = 60 =$ the length of the shadow when upright, and $AD = 50 =$ the length of the shadow when inclined; also let fall the perp. FE; hence the following analogy as rad. : sine $\angle FAE :: AC : ED = 31.795$, then $AD = 50 - 31.795 = AE = 18.205$, from which and the L 's the length of the cane is found $= 21.477$ inches, from which and its shade the sun's altitude (after deducting the semi-diameter and refraction) is $= 19^\circ. 23'. 23''$. hence we have the altitude of the sun $= 19^\circ. 23'. 23''$. declination $23^\circ. 28'$, and lat. $= 53^\circ. 6'$. to find the hour from midnight $= 76^\circ. 28' = 5h. 5'. 52''$. and the time the sun sets on the given day is $3h. 41'$. before midnight; hence the answer is $2h. 24'. 52''$.



Other solutions were given by Messrs. A. Buchanan, and Mr. Hall the Proposer.

XII. QUESTION (57) answered by Mr. Patrick Hall.

Put $x =$ radius of the cone's base; $32 = a$; $2000 = b$, $.7854 = n$. and s & $c =$ sine and co-s. rad 1, the alt. of the sun's upper limb (for the given time per sph. trig.) is found $45^\circ. 21'$. nearly; then (per plain trig.) $c : x + a :: s : \frac{s}{c} \cdot \overline{x+a} =$ cone's altitude; and $\overline{2x}^2 \times \frac{s}{3c} \cdot \overline{x+a} \cdot n =$ solidity of the cone $= b$. $\therefore x^2 + ax = \frac{3cb}{4sn}$, solved $x = 19.195$; the perpendicular height of the cone $= 51.8243$ feet, which make $= d$, and put $s =$

$16\frac{1}{2}$ feet, then it is evident, that the velocity of a body descending on any plane, from the same height to the same horizontal line, are equal \therefore as $\sqrt{s} : 2s :: \sqrt{d} : 2\sqrt{sd}$, the uniform velocity down the slant = 57.741 feet, which \times by the weight of the ball will give the force when it leaves the cone; and as it then runs or moves in a non-resisting medium on a tangent to the earth, the ball will, in course, run *ad infinitum*.

The same by Mr. T. Whiting.

First, there is given the lat. = 51° . the declination answering to the given time, and longitude = $22^{\circ}.23'.58''$. and hour angle = 45° . to find the altitude = $45^{\circ}.3'$. to which add the semidiameter, refraction and parallax gives $45^{\circ}.20'$. for the apparent altitude of the sun's upper limb. Let $d = .7112$ = nat-sine $45^{\circ}.20'$. $C = .7021$ its nat-co-sine $b = 32$, x = semid. of the cone's base $g = .7854$ then as $c : x + b :: b : \frac{dx + db}{c} =$

the height of the cone, $4x^2g$ = the area of the base and $\frac{4dgx^3 + 4dbgx^2}{3c} = 2000$ reduced gives $x = 19.19$, hence

the perpendicular is = 51.85. By the laws of falling bodies, the celerity acquired in falling down the slant height is equal to that of falling down the perpendicular, hence $16\frac{1}{2} : 1 :: 51.85 :$

$\sqrt{51.85} = 7.278$ the time of descent through the perpendicular

lar; consequently $\frac{51.85 \times 2}{7.278} = 58.389$ feet, the velocity at the end of the fall. And as the ball moves in an unresisting medium without friction, it will never stop.

XIII. QUESTION (58) answered by Mancunienfis the Proposer.

Const. Having made AB = the sum of the given radii, on A and B respectively as centers, with the rad. describe the two given circles, also draw the indefinite tan. IH on AB (by Euc. iii. 33) describe the segment of a circle $AEFB$ capable of containing the given angle at the vertex at any point C in IH make the $\angle ICD$ = the given \angle made by the line drawn from the vertical angle with the base; make CD = this given line, through D draw $EF \parallel IH$ to intersect the circle in E and F , from

E and F draw the tangents EG, FI and EH. FK cutting the indefinite tan. IH in GI and HK; so shall the triangle GEH or IFK be the required one.

Demon. Because the lines EG, GH, and FI, IK and HE, KF, are tangents to the given circles A and B, they are inscribed in the triangle GEH and IFK; from E and F, draw EL and FM \parallel DC; then, because EL and FM is parallel to DC, and EF to IH; EL and FM is = DC, and the \angle ELG, FMI is eq. the given angle, made (by the line drawn from the vertical angle) with the base. Q. E. D.

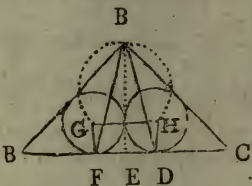


Schol. If CD be drawn through the center of the circular segment, and D falls in its circumference; E, and F, will coincide in D, and DC will be a max. (Euc. iii. 8) but when D falls without the segment, the problem is impossible.

Ingenious constructions were given by Messrs. W. Salter, J. Salter, S. Banyard, D. Sheridan.

XIV. QUESTION (59) answered by Mr. Samuel Banyard, Great Yarmouth.

Construction. Take FE = ED = radii of the circles, and draw EB \perp AC; draw GF, and HD each perpendicular to AC, and = the radii; join G and H; upon GH, let a segment of a circle (capable of containing the given angle) be described, cutting the perpendicular EB in B, lines drawn from the point B to touch the circles, and terminate in AC, will form the triangle required; because GF = HD, AB = BC; therefore, the triangle ABC is Isosceles, and the angle FBD a minimum (by Theo. 7. p. 199. Simp. Geo.)



Good constructions were also given by Messrs. J. Salter, D. Sheridan, J. Griffith, and Mancunienfis the proposer.

XV. QUEST-

XV. QUESTION (60) answered by Mr. Patrick Hall, Schoolmaster, of Denby, Derbyshire.

It is manifest (at p. 218 of Simpson's algebra) that the sum of the series $\frac{1}{p \cdot p \times 1} + \frac{1}{p \times 1 \cdot p+2}$ &c. carried on ad infinitum, will fall under the series

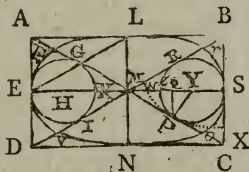
$1 + \frac{m}{m+2} + \frac{m \cdot m + 1}{m+2 \cdot m+3} + \frac{m \cdot m + 1}{m+3 \cdot m+4} + \frac{m \cdot m + 1}{m+4 \cdot m+5}$ &c.
 $= m+1$; the derivation of which, and many others of a similar kind, may be there seen; put $m=p$, and divide the whole series by $p \cdot p+1$, and we then obtain,

$$\frac{1}{p \cdot p+1} + \frac{1}{p+1 \cdot p+2} + \frac{1}{p+2 \cdot p+3} + \frac{1}{p+3 \cdot p+4} + \frac{1}{p+4 \cdot p+5} \&c.$$

ad infinitum $= \frac{p+1}{p+1 \cdot p} = \frac{1}{p}$ the sum required.

XVI. QUESTION (61) answered by Mr. Thomas Todd proposer, Scorton, near Catterick, Yorkshire.

By Simpson's Fluxions, p. 18, the least Isosceles triangle, AMD, that can circumscribe the circle, EGIE, will be when $AM=AD=2r\sqrt{3}$, then $EH=HK=KM=r$, the radii of the circle, hence $EM=\frac{3}{2}r$ the semi-axis, and $EA=r\sqrt{3}$ (perpendic. to



EM) = the semi-conjugate axis LM , and (by Simp. Geom. p. 201) the least elliptic quadrant $MFEV$ that will circumscribe the circle will be, when $MG=GA=r\sqrt{3}$ ($EL \parallel DB$). Moreover (by pages 21 and 36 Em. Conics) $MG \times GA=GA \times GL=r\sqrt{3} \times 2r\sqrt{3}=(MF)^2=br^2 \therefore MF=r\sqrt{b}$ each semi-conjugate diameter \therefore the diameters FO, VT are each $=2r\sqrt{b}$, and conjugate to each other, and the angle $AMD=60^\circ$, angle $AML=60^\circ$, whose nat. sine of 60° , or of $120^\circ = \frac{\sqrt{3}}{2}$; therefore the area of each

elliptic quadrant $= r\sqrt{b} \times r\sqrt{b} \times \frac{\sqrt{3}}{2} \times .7854$, or of

$130^\circ = \frac{\sqrt{3}}{2}$ therefore the area of each elliptic quadrant $= r$

$\sqrt{b} \times r \sqrt{b} \times \frac{\sqrt{3}}{2} \times .7854, = 3r^2 \sqrt{3} \times .7854$, but only the two opposite quadrants (as per fig.) that will circumscribe the circle, and the area of the whole ellipsis $= 12 r^2 \sqrt{3} \times .7854$.

Scholium. It is impossible to find “the least ellipsis such, that a circle may be the greatest that can be inscribed in any one quadrant thereof,” for then they become quadrants of a circle.

The same answered by Mr. Daniel Sheridan, of Wednesfield, near Bilston.

XVII. QUESTION (62) PRIZE, answered by Mancunienfis, the proposer.

Put $a = 4''$ the time of descent, $s = 32 \frac{1}{6}$ feet the velocity acquired in vacuo in $1''$, $e = 1$ foot the diameter of the ball, $m = 1000$ its specific gravity, $n = 1$ the specific gravity of the air, x = the space described from the commencement of motion in any variable time t , v the velocity at the beginning, and z the velocity at the end of that time; now it being proved by experiments, that the resistance of a ball moving in a resisting medium, is to the force by which its motion may be generated in the time of describing $2 \frac{2}{3}$ of its diameter as the specific gravity of the medium, to that of the ball nearly; and the force being as the velocity divided by the space uniformly described in a given time, by putting w the weight of the ball,

we have $\frac{s}{n} : w :: \frac{3v}{8e} : \frac{3wv^2}{8se}$, the force that will generate the balls motion in describing $2 \frac{2}{3}$ its diameter, and $m : n :: \frac{3wv^2}{8se} : \frac{3wv^2n}{8sem}$ the resistance of the ball moving with velocity

v , and $\frac{3wz^2n}{8sem}$ its resistance moving with velocity z ; but

$\frac{mw - nv}{m}$, is the weight of the ball in the medium, \therefore

$\frac{m-n-3z^2n}{m} \frac{1}{8sem} \times w$, is the force drawing the ball towards the earth as it descends; now $1 : s :: t : st$ the fluxion of the velocity generated by gravity in the time t ; but the fluxion of the time multiplied by the force, being constantly as the fluxion of the velocity we have $st : wt :: \dot{z} : \frac{m-n-3z^2n}{m} \frac{1}{8sem} \times w \dot{t}$

$(= \frac{wz}{s}) \therefore \dot{t} = \frac{8em\dot{z}}{8sem-8sen-3z^2n}$, the fluent of which

(when $v = a$) is $t = \frac{2em}{6emn-6en^2} \frac{1}{s} \times h. \log.$

$\frac{8sem-8sen}{8sem-8sen-3z^2n} \frac{1}{2} + \sqrt{3} \frac{z^2n}{2}$, consequently (when $t = a$)

$z = 120.8673$ feet the velocity per second in the medium;

also $\dot{x} = z\dot{t} = \frac{8emz\dot{z}}{8sem-8sen-3z^2n}$, the corrected fluent of

which (when $v = 0$) gives $x = \frac{4em}{3n} \times h. \log. \frac{8sem-8sen}{8sem-8sen-3z^2n}$

$= 249.21032$ feet, the length of the plane. But the perpendicular descent in vacuo, in the same time, will be expressed by

$\frac{sa^2}{2} = 257\frac{1}{3}$ feet, and the velocity per second, by $sa = 128\frac{2}{3}$

feet, hence because the distance described, or velocity acquired by moving down an inclined plane (in a given time) is to the perpendicular descent, or velocity acquired thereby (in the same time) as the co-sine of the angle of inclination is to radius, we have $257\frac{1}{3}$ feet : 249.21032 feet :: rad. : co-sine of $14^\circ. 26'. 4''$. the inclination required, and rad. : co-sine of $14^\circ. 26'. 4''$:: $128\frac{2}{3}$ feet : 124.60516 feet the velocity per second acquired by moving down the inclined plane.

The same was answered by Mr. John Griffith.

Mr. Thomas Todd's Answer to the Frize Question last year, which was omitted by the Compositor.

Suppose the right angled triangle ADB to circumscribe both the circle and semi-parabola, and pe atangent to the curve in the point e , putting $q = 2000$ yards $= CE = CP = NF$
 $= r$

$= r I$, the radius of the given circle, and $x = \text{nat. fine of } C E N$, or $E P F$, and y its co-sine; then, by the circle, $E B = B F D E = D B$, and, by trig. rad. $1 : C E (r) :: y : E N = r y \therefore E F = r + r y$; and rad. $1 : c r (r) :: x : N C = F r$

$= r x$; also $y : E F (r + r y) :: x : \frac{r x}{y} \times \overline{y + 1} = F I = \frac{1}{2}$

the parameter, $\therefore \frac{2 r x}{y} \times \overline{y + 1} = \text{parameter}$; also, $x : E F$

$(r y + r) :: y : F B = 2 F G = \frac{r y}{x} \times \overline{y + 1} \therefore F G = \frac{B F}{2} = \frac{r y}{2 a}$

$\times \overline{y + 1}$, and thence the abscissa $A G = G F + F r + r A = \frac{r y}{2 a} \times \overline{y + 1} + r x + y = A H$, by question, and, by the

parabola, $A G \times$ by the parameter $2 F I \left(\frac{2 r x}{y} \cdot \overline{y + 1} \right) =$

$[A H]^2 = [A G]^2$, by quest. $= \frac{r y}{2 x} = \overline{y + 1} + r x + r \therefore$ be-

cause $A H = A G$, we have, $\frac{2 x}{y} \times \overline{y + 1} = \frac{y}{2 x} \times \overline{y + 1} + x + 1$

or $\frac{4 x}{y} \times \overline{y + 1} = y^2 + y + 2 x^2 + 2 x$, or $4 x^2 y + 4 x^2 = y^3 + y^2 + 2 x^2 y + 2 x y$, $\therefore 2 x y + 4 x^2 = y^3 + y^2 + 2 x y$
 $(x^2 = 1 - y^2) \therefore 2 y - 2 y^3 + 4 - 4 y^2 = y^3 + y^2 + 2 y$

$\sqrt{1 - y^2} \therefore 4 = 3 y^3 + 5 y^2 - 2 y + 2 y \sqrt{1 - y^2}$, which solved $y = .791089633$, and thence, $x = .611700247 \therefore A G = A H = 2.769875715 r = 2 F I$, and therefore the area of the semi-parabola $A H E G = 5.11480759 r^2 = 20459230.36 \text{ sq. yards}$; and $A D = 1 + y + x \cdot \frac{x}{y} = 3.03731685 r$, and $A B = 1 + y + x \times$

$\frac{r}{x} = 3.92805118 r$ the legs of the required triangle. Moreover the area of the least right angled semi-parabola that can circumscribe the given circle, by Ladies Diary 1788, p. 38, is $\frac{3 r^2}{2} \sqrt{3 + r^2} \sqrt{b} = 5.047565954 r^2 = 20190263.81 \text{ sq. yards}$, therefore, the first area is greater than the last, by 268966.55 square yards. I sent this question and solution to the Ladies Diary in the year 1787, which they would not publish, because the person that disputed with me was their correspondent, John Jackson.

New QUESTIONS to be answered in next Year's DIARY.

I. QUESTION (63) by Mr. William Swift, of Stow.

In company the other night,
With Miss A. B. a lady bright,
Miss' age upon the stage was brought,
If it by figures could be wrought.
By these equations here* below,

She'd give her hand to Swift of Stow,
And fifteen hundred pounds in gold;
Kind Sirs this secret pray unfold
In British Diary next year,
And you'll oblige your serviteur.

* $450 = 2x^3 - x^2 + 35x - 35 + x^2 + x$, whence x represents her age in whole numbers?

II. QUESTION (64) by Mr. James Stevenson.

Given $\left\{ \begin{array}{l} x^2 - 671 = y^2 \\ \frac{x^3 - y^3 - 1331}{3} = x^2 y - x y^2 \end{array} \right\}$ Quere x and y ?

III. QUESTION (65) by Mr. Hinderson, of Westerdale.

There is a foot race for a mile to be run upon two acres of ground, in form of a long square, once about; I demand the length and breadth?

IV. QUESTION (66) by Mr. Thomas Nield, Master of a Boarding School, Hawarden.

A Gentleman hath in his garden a fish-pond, in form of a parallelogram, the sum of whose sides is 42, and diagonal from corner to corner = 15 yards; now he desires to have round the said pond, a walk of 4 yards broad; the area, or content, of the walk is required?

V. QUESTION (67) by Mr. Joseph Waters, of Graves lane.

Given the common diagonal of two different rectangles (the area of each, equally exceeding the square of its end) = $\sqrt{20}$, and the difference of the cubes of their areas = 296; to determine their dimensions?

VI. QUESTION (68) by Mr. William Hulland, of Nearborough, Staffordshire.

Required the solidity of a prolate spheroid, the solidity of the greatest cube which can be cut out of the said spheroid, being 7077.888 inches, and the product of the square of its tranverse

tranverse axis, by the square of the diagonal of a parallelogram, whose ends are the parameters of the spheroids generating ellipsis = 790528 inches ?

VII. QUESTION (69) *by Mr. Patrick Hall, Schoolmaster.*

There is an erect cone standing perpendicular to the horizon, and two balls, at the same moment, begin to move on down the flant side, and the other on an inclined plane, drawn from the center of gravity, the two balls strike each other the same instant they arrive at the horizon ; required the dimensions of the cone, when the content thereof measures to 240 solid feet ?

VIII. QUESTION (70) *Philaethes Cleasbyensis,*

Having seen the following question taken out of Clares' introduction to trade and business, put into two late books of arithmetic, and false solutions given in each book ; after this, sent it to the Ladies Diary, which also solved it false (in p. 110, Clares' Trade). Q. of Rotterdam, remits to R. of Paris, 2000 crowns, at 91d. Flem. per crown, at double usance, or two months, and pays $\frac{3}{20}$ per cent. brokerage, with orders to remit him again the value, at 93d. per crown, allowing, at the same time, $\frac{1}{3}$ per cent. for provision. What is gained per annum by a remittance thus managed ?

IX. QUESTION (71) *by Mr. Jonathan Hornby, of Westerdale.*

Let the breadth of a street be 100 feet, in which are two houses opposite, as A and B ; now, two ladders being placed to reach the top of each house, met in the middle of the street, and it was found, that the sines of the two angles, made by the ladders and street, were in proportion as 2 to 3, and their tan. as 4 to 7 ; required the heights of the houses (the house A. being the highest) and the lengths of the ladders ?

X. QUESTION (72) *by Mr. Daniel Sheridan, of Wednesfield.*

Required the ratio of the centrefugal, to the centrepetal of a stone turned round in a sling, whose length in feet, number of rounds, and the time in seconds it was performing those rounds, make 10, when the rectangle of the sling's length, and number of rounds, added to the square of the time is a min.

XI. QUES-

XI. QUESTION (73) by Mr. Thomas Leybourn.

The perpendicular of any plain triangle, the vertical angle, and the angle formed by two right lines drawn from the extremities of the base to the middle of the perpendicular, being given; to determine the triangle?

XII. QUESTION (74) by the same.

Two right lines meeting in a point, being both in position and length, to draw a right line through the point of concurrence, so that if perpendicular be let fall thereon from the ends of the two given lines, the two triangles formed thereby shall be equal?

XIII. QUESTION (75) by Mr. Robert Carlisle.

Required a general theorem for the sum of the series,

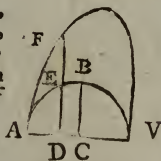
$$\frac{1}{1 \cdot 2 \cdot 3 \&c. \text{ to } r} + \frac{1}{2 \cdot 3 \dots r + 1} + \frac{1}{2 \cdot 3 \cdot 4 \dots r + 2} \&c. \text{ continued ad infinitum?}$$

XIV. QUESTION (76) by Mr. James Ashton, of Harrington, near Liverpool.

At the front of gentleman's hall, in the country, there is a semi-circular gravel walk, of two yards broad, and 6 yards radius, on the inner side, which is to be enlightened by two lamps (of equal size and quality) to be fixed on the front of the hall, and perpendicular over the centre of the walk; it is required to find the two points, the one two yards higher than the other, where the said lamps must be fixed, so that the aggregate of the light, on the said walk may be the greatest?

XV. QUESTION (77) by Mr. A. Buchanan, Sedgefield.

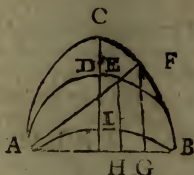
A B V is a given semi-circle, C the centre, in which there is drawn any ordinate D E, and then upon D E produced, there is taken E F always equal to the corresponding abscissa A D; required the locus, and quadrature of the whole curve described by the point F, and also the quadrature of the segment, when the ordinate is a maximum?



XVI. QUES-

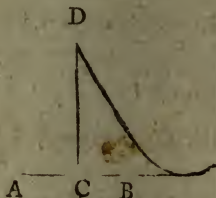
XVI. QUESTION (78) by Mr. John Salter, Bilston.

Let $A C B$ be a semi-ellipsis, $A D B$ a semi-circle, and suppose a right line be drawn from A to any point, as F , in the periphery $A C B$, cutting the semi-circle also in E ; let also the perpendiculars $E H$, and $F G$ be drawn; on $E H$, take $H I$ always $= H G$, then will the point I be always in the curve $A I B$; required the area of the said curve; also the content of the solid generated by the rotation of the curve round its axis $A B$?



XVII. PRIZE QUESTION (79) by Mr. T. Cock, of Greenwich, Teacher of the Mathematics and Natural Philosophy.

At a point C , in a given right line $A B$ produced, let a perpendicular be erected, in which take $C D$ a third proportional to n times $A B$, and the n th power of $A B + B C$; required the value of $C B$, and $C D$, when the area of the curve, which is the locus of D , is equal to a given quantity b . And give an exam. when $n = 1$, $A B = 9$, and $b = 64$?



All letters for the use of this Diary, are desired to be directed thus, "For Messrs. Cotes and Taylor, to be left with Mr. Joseph Peet, High-pavement, Nottingham (Post-paid)" to come to hand by the first of May.

F I N I S.

LNH 3608